http://www.oldgamesitalia.net/

commodore WORLD

THE NEWS MAGAZINE FOR COMMODORE 64 & 128 USERS • ISSUE 23 • $4.95 U.S.

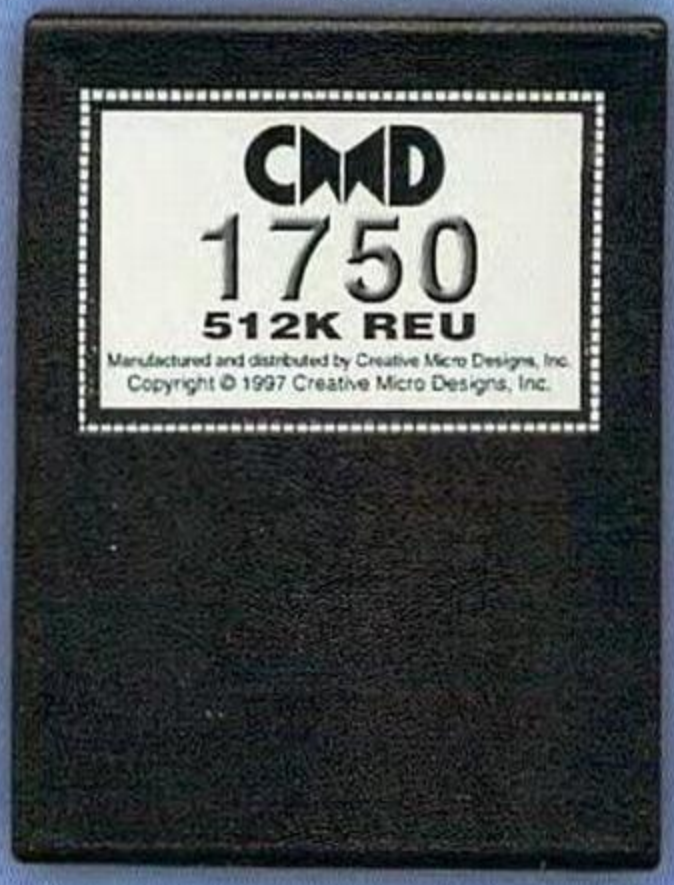
http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

CMD introduces two new ways to

IMPROVE YOUR MEMORY



Hoping to get your hands on something that will light a fire under your computer? Well get out your asbestos gloves, because CMD has just starting shipping their scorching lineup of RAM Expansion Units, the CMD 1750 and CMD 1750XL. Commodore users worldwide are warming up to these hot little units—and for good reason! CMD's new REU's will put ZING in your spell-checker, TURBOCHARGE your GEOS applications, and deliver your downloads with BLISTERING SPEED! Supplies of these RAMpaging REUs are limited, so order yours before it's too late!

512K CMD 1750 $99.00

Features

- **Commodore REC controller chip for maximum compatibility**
- **Small case size—no larger than most game cartridges**
- **Lower power consumption than most other RAM devices**
- **Compatible with SwiftLink and Turbo232 interfaces**
- **Supplied complete with utilities and documentation**

Creative Micro Designs, Inc.

1-800-638-3263

2 MB CMD 1750XL $119.00

Note: CMD recommends the use of a heavy-duty power supply with these devices when attaching them to a Commodore C64 or C64c.
Prices do not include shipping, and are subject to change without notice. Not responsible for typographical errors.

http://www.oldgamesitalia.net/
http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

CONTENTS

• ISSUE 23 • Published June 1998 •

COMMODORE WORLD
THE NEWS MAGAZINE FOR COMMODORE 64 & 128 USERS

http://www.cmdweb.com/cwhome.html

GENERAL MANAGER
Charles R. Christianson

◆

EDITOR
Doug Cotton

◆

ADVERTISING SALES
Charles A. Christianson
(413) 525-0023

◆

GRAPHIC ARTS
Doug Cotton

◆

ELECTRONIC PRE-PRESS & PRINTING
Mansir/Holden

◆

Cover Design by Doug Cotton

Commodore™ and the respective Commodore product names are trademarks or registered trademarks of Commodore, a division of Tulip Computers. Commodore World is in no way affiliated with the owner of the Commodore logo and technology.

Commodore World (ISSN 1078-2516) is published 8 times annually by Creative Micro Designs, Inc., 15 Benton Drive, East Longmeadow MA 01028-0646. Second-Class Postage Paid at East Longmeadow MA. (USPS #011-801)

Annual subscription rate is US$29.95 for U.S. addresses, US$35.95 for Canada or Mexico, US$45.95 for all EC Countries, and US$57.95 to all other addresses worldwide. All subscription payments must be provided in U.S. Dollars. Mail subscriptions to CW Subscriptions, c/o Creative Micro Designs, Inc., P.O. Box 646, East Longmeadow MA 01028-0646.

Entire contents copyright © 1998 by Creative Micro Designs, Inc., unless otherwise noted. No part of this publication may be printed or otherwise reproduced by any means without prior written consent from the publisher. All programs published in this publication are for the personal use of the reader, and may not be copied or in any way distributed. All rights reserved. Programming examples and routines in this issue which are presented for educational purposes may be used in the creation of programs by the purchaser of this magazine, provided credit for the routines is clearly presented in either the program documentation, or the program itself. Creative Micro Designs, Inc., assumes no responsibility for errors or omissions in editorial, program listings or advertising content. Creative Micro Designs, Inc. assumes no liability for advertisers claims or reliability.

POSTMASTER: Send address changes to: CW Address Changes, c/o Creative Micro Designs, Inc., P.O. Box 646, East Longmeadow MA 01028-0646.

FEATURES

8 WHEELS—LAYING MORE THAN A PATCH
Bruce Thomas
14 GOFA—A MODULAR PROGRAMMING SYSTEM FOR THE COMMODORE 64
George Flanagan

REVIEWS

24 SOFTWARE: CENTIPEDE 128 BY GAELYNE R. GASSON
A Look at the Newest Commodore 128 BBS Program

COLUMNS

26 JUST FOR STARTERS BY JASON COMPTON
Helpful Hints for Handling Disk Drives
30 GRAPHIC INTERPRETATION BY BRUCE THOMAS
GEOS: For a Good Time...
32 CARRIER DETECT BY GAELYNE R. GASSON
Telecommunications News & Updates
36 816 BEAT BY MARK FELLOWS
Things to Look Out For When Programming the 65816
38 OVER THE EDGE BY JEFFREY L. JONES
Commodore Programming in a SuperCPU World

DEPARTMENTS

2 FROM THE EDITOR
4 ON THE HORIZON
6 COMMODORE TRIVIA
40 CLASSIFIED ADS
40 ADVERTISER'S INDEX

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

FROM THE EDITOR

WHEELS ON THE MOVE

In Issue 22's editorial I indicated that two new GEOS updater's were scheduled to release soon. While we haven't heard anything more about GEOS MegaPatch v3.0 yet, Wheels 64 has squealed past the starting line and is presently burning up the track. It is indeed a pleasure to see such a powerful new system released at this point in the history of Commodore computing. Inside this issue we provide some first impressions of Wheels 64; however, we'll also be revisiting this subject in a future issue after looking into technical aspects of driver speed, compatibility and other issues.

Other things you'll find inside this issue include a modular programming system for the Commodore 64, a review of the Centipede BBS program for the Commodore 128, some tips on dealing with the Y2K (Year 2000) problem in GEOS, and some situations to avoid when programming the 65816.

In addition, there's a rant to programmers about avoiding the tendancy to become lulled into writing slow code simply beacuse they have a SuperCPU. I broke this out from the rest because I think it bears an editorial comment. While I tend to agree with the opinion put forth on the matter here by Jeff Jones, I think that it fails to strongly point out that such guidelines needn't be followed when writing programs for your own use. Many BASIC programmers will find that the SuperCPU enables them to create programs which would have otherwise run too slow. However, I do still encourage anyone interested in machine language to learn it and take advantage of it when possible—whether you have a SuperCPU or not.

Doug Cotton
Editor

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

SO, YOU THOUGHT YOU COULDN'T AFFORD LOADSTAR?
NOW YOU CAN BUY IT EVERY MONTH BY MAIL FOR
LESS THAN IT COST IN THE EIGHTIES – BUT PACKED WITH MORE!

$7.95
For Loadstar #165 or any back issue

BUY IT BY THE MONTH!
Shipping costs included!

$2.00
For Loadstar Letter #54 or any back issue

Every month without fail, Loadstar and the Loadstar Letter bring you a megabyte of new Commodore Software, articles, tutorials and entertainment. All of our new software is CMD drive-friendly, and SuperCPU Compatible.

Orders (800) 594-3370 Questions: (318) 221-8718

Loadstar #165 Contents

Star Copier '98
Thanks to Bob Markland, our handy file copier is fixed!

Fission
This mouse-driven card solitaire is also one of Maurice's best.

Mansion
Using Cameron Kaiser's WORLD MAKER system, John invites you into the Charles Mansion, where no good deed goes unpunished.

Puzzle Page #165
Number-teasers, word-puzzles and brain-stumpers a-plenty! Plus, Knees' monograph on mystery mores.

Legal Beagle III
Generate some more legal documents which you can customize for your own use.

A Night On The Town
Take a musical trip from the quaint eateries of the outer city into the heart of darkness we call "uptown".

Room - 4k Contest Winner
A small demo that gives you a glimpse of what the world of DOOM is like.

Twin Terrors
For one or two players, this exciting game offers 99 levels of jumping and shooting.

Gershwin Jukebox
Eight memorable tunes by George Gershwin, including Rhapsody in Blue (in three movements), the three Preludes, and Swanee, made famous by Al Jolson.

Quicksmith Music
31 songs by musicologist Dave, all converted into the QUICKSMITH format by Lee Novak.

Clip Joint #2
A geoPaint document chock full of attractive images just ripe for clipping.

Geos Disk Tools
Ten tools for the Geos environment that will make your navigation faster and easier. All are well explained by our Geos Man About Town.

Diskovery
Your editor confronts another crisis, mourns a prolific C-64er, describes a new product, and introduces a Euro company.

Jeff's Soapbox
Jeff mediates (or aggravates?) the battle of the operating systems.

LOADSTAR LETTER #54
Bill Gates Attacked By Professional Pie
Wheels/GeoFAX Sweepstakes
The Loadstar Letter is published monthly. It's the biggest, most informative, and authoritative newsletter available for the Commodore 64 and 128
An Interview With Maurice Randall
LOADSTAR
Disk 1
Side 1
Side 2
ISSUE 165
OVER 2000 BLOCKS OF NEW SOFTWARE ON TWO 5¼-INCH OR ONE 3½-INCH DISK!

Centsible Software
A list of 50 commercial "in the box" programs from the world's largest CBM software store.

Modern Printers
Looking for a new printer for your C-64/128? Read this first!

Master Of Trades
In memory of a dedicated Commodorean, we present Part One of his autobiography.

Newsletter Naniskad
A compilation of tidbits from newsletters from all over the world.

All programs tested and known to work with your SuperCPU™ and all CMD devices. Over 200K of documentation every month automatically presented on disk.

LOADSTAR #LSCW

SEND CHECK OR MONEY ORDER TO:
PO BOX 30008, SHREVEPORT LA 71130-0008
CALL 1-800-594-3370 AND ORDER THIS MONTH'S LOADSTAR FOR $7.95
OR ORDER THIS MONTH'S LOADSTAR LETTER FOR $2.00
OR GET *BOTH* FOR $9.95! ALL MAJOR CREDIT CARDS ACCEPTED.

REACH US ON THE WEB!
HTTP://WWW.LOADSTAR.COM
FENDER@LOADSTAR.COM JUDI@LOADSTAR.COM
JEFF@LOADSTAR.COM
OR FAX YOUR ORDER TO (318) 221-8870

NAME:
ADDRESS:

☐ Send me Loadstar #165 for $7.95 ☐ 3½-inch disk ☐ 5¼-inch disk ☐ Send me The Loadstar Letter #54 for $2.00 ☐ Send both for $9.95

Credit Card
Account #
Exp. Date
Signature

http://www.oldgamesitalia.net/
http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

ON THE HORIZON

COMMODORE AND COMPUTER INDUSTRY NEWS

Wheels 64 Released

Maurice Randall's Click Here Software has recently started shipping the initial release version of Wheels 64. The program is a substantial upgrade for existing GEOS 64 v2.0 owners, adding a new user interface and completely revamping the existing GEOS Kernal via a patch installation. In addition, Wheels provides extensive support for nearly all of the major Commodore-compatible peripherals released over the past few years. Wheels requires a minimum of a Commodore 64, GEOS 64 v2.0, a GEOS-supported input device, a 1541 disk drive and an REU or other standard RAM device. The price for Wheels 64 is $36.00, and it is available directly from Click Here Software and authorized dealers. For additional details, see the feature article in this issue or contact Click Here Software at:

Click Here Software
c/o Maurice Randall
P.O. Box 606
Charlotte MI 48813
Phone: (517) 543-5202 Monday-Friday 8 am - 6 pm
Email: arca93@delphi.com

Commodore Power User Is Back

After a long absence, Commodore Power User has returned to publication. CPU Publisher Tom Gosser has also announced that distribution of the magazine be bimonthly as of the #6 1998 Issue. Additional writers have been added to the mix, and a subscription price increase has also been announced. The new annual 6-issue subscription rates are US$20.00 (US addresses), US$30.00 (Can/Mex), and US$40.00 (EC and others). For additional details, contact:

CPU Magazine
P.O. Box 1817
Shelton, WA 98584

Desterm Updated Beta Available

After several weeks of testing and bug fixing, Matthew Desmond has released an updated Beta version of Desterm 128, a Commodore 128-specific terminal program. In reality, two updated beta version have been released in the past few weeks; the first, v3.01, fixed the majority of reported bugs, but introduced a rather nasty bug of its own. Several days later a new version 3.02 was released which resolved the new problem. The new release is still considered to be a beta test version, so be aware that additional bugs may exist. For additional information, or to obtain the current version, visit the Official Desterm web page at:

http://www.ionline.net/~mdesmond/desterm.html

CMD News Items

CMD recently disclosed that all pre-ordered SuperCPU 128 units have been shipped, and that they are also current on orders for both the SuperCPU 64 and SuperCPU 128. In addition, prices on many of the SuperCPU/SuperRAM configurations have been rolled back for a summer sale. This obviously marks the green light for anyone who has been waiting until SuperCPU's were available from stock.

CMD has also discontinued carrying Zoom modems, as Zoom recently designed-out the Group 3/Class 2 fax protocol required for GeoFAX compatibility. For the time being, CMD will be offering US Robotics Sportster 33.6K bps fax modems instead, which provide Group 3/Class 2.0 capability, and are compliant with GeoFAX requirements.

CMD has also announced a temporary 'bundled' price for GEOS 64 v2.0 and Wheels 64. For a limited time, the two items which normally cost a total of $80.00 will be offered together at a price of only $65.00. Nearly all other GEOS applications have also been reduced for the summer.

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

CENTSIBLE SOFTWARE

We carry America's Largest Selection of C64/128 Software

Productivity

GeoProgrammer.....$35.00
Better Working C.....$20.00
Newsroom.....$15.00
Art Gallery 2.....$15.00
C128 Superbase 128.....$15.00
64 Power Pack.....$15.00

Educational

European Nations.....$12.00
Big Bird's Fun House.....$10.00
Money Business.....$15.00
Alpine Tram Ride.....$15.00
Animal Hotel.....$15.00

Games

Leader Board Golf.....$10.00
Ms Pacman.....$8.00
Water Polo.....$8.00
Roger Rabbit.....$10.00
John Elway Quarterback...$12.00
Wrath of the Demon.....$18.00
Death Knights of Krynn.....$18.00
F-15 Strike Eagle.....$15.00
Golden Oldies.....$12.00

We have new shipments of Supplies, Accessories, Hardware and Software arriving monthly.

New this Month.....

Tach 30 Joystick...$19.95
Tach 5 Joystick....$17.95
Tach 3 Joystick.....$15.95
Icontroller.....$24.95
Wico Q Stick.....$15.95
Adult Poker.....$9.95
The Gambler.....$9.95

Mindscape Power Player Joysticks...$9.95

Spreadsheets/Databases

Team Mate.....$15.00
Datamanager 2.....$15.00

Accessories

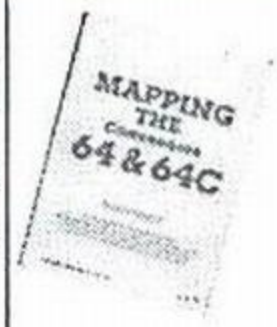
Dust Covers.....$8.00
(Call for Choices)
Cheat sheets.....$5.00
(Call for Choices)

Hardware

Used 1571's.....$45.00
Used 128's.....$50.00
Used Monitors.....$85.00
Used 1541-II's.....$35.00
Used Printer.....$25.00
(Call for choices)

Disk Special

5 1/2" Floppy Disks
(Minimun Purchase 20)
Pack of 20.....$2.40



Mapping the 64 and 64C
$19.95

Bob's Term Pro
$15.95

Geowrite Workshop
$14.95

Prices listed do not include shipping and handling. U.S. Residents add $5.00 per order. All others add 7.00 per order. Call or Write for your free C64/128 Catalog listing Hundreds of Commodore items. Office hours are 1PM to 8PM EST Monday thru Thursday. Info Line:1-616-471-1083
Fax Orders:1-616-473-3456

Email: cents@sprynet.com
Web Site: home.sprynet.com/sprynet/cents
Mail: 8818 College Ave., Berrien Springs, MI 49103

To Order call Toll Free:1-800-640-6211
Major Credit Cards Accepted

The Commodore LASER LOVERS' DISK!

When you care enough to print the very best!

How many times have you looked at print media and asked, "Why can't I do this on my Commodore?" **Perhaps now you can!**

My "**LASER LOVERS' DISK**" contains Maurice Randall's **POSTPRINT** which will enable you to send PostScript files from geoWrite documents. I have been printing PostScript from the Commodore for over six years. This disk contains all the GEOS laser fonts resident in your printer and a few PostScript fonts that aren't. Included is a short history of PostScript on the Commodore, an introduction to PostScript programming specifically designed for Commodore users, and many sample programs which you may include in your own documents.

You should have GEOS 2.0, a large capacity drive (such as a 1581, RAMLink, or CMD HardDrive), and a PostScript laser printer.

Mail a $25 check to K. Dale Sidebottom P. O. Box 303, New Albany IN 47151-0303. Call (812)944-9132 if you have any questions.

Do You Wish You Had More Commodore News?

There just aren't enough good Commodore magazines around. *Commodore World* being one of the few. Have you considered subscribing to a *good newsletter*? The ***LUCKY REPORT*** is a twelve-page newsletter published 11 months of the year for LUCKY, Inc., a Commodore club that is almost as old as the 64 itself. The editor, K. Dale Sidebottom, has been published in many Commodore publications. We invite you to check us out now! You may send only $5.00 for your first four issues; or, if you wish, mail in $15.00 for an annual subscription. If you add $5.00 [$20 total price], you can become a **LUCKY** member with full access to our 1000+ disk library, etc.

Make your check out to **LUCKY** and mail to LUCKY, Inc.
c/o K. Dale Sidebottom P. O. Box 303, New Albany IN 47151-0303.

Computer Bargain Store

(801)466-8084

Specializing in NEW and USED Commodore Hardware, Software and Accessories at excellent prices.

Send $1.00 for a HUGE list of products. Office Hours:
11:30 - 6:30 MST. Visa, MC, Discover and American Express accepted.

3366 South 2300 East, Salt Lake City, UT 84109

The Vintage Computer

Specializing in Pre-Owned Commodore

Free Catalog

- C-64 w/PS $19.95
- C-128 w/PS $59.95
- PLUS4 w/PS $18.95
- VIC-20 w/PS $18.95
- C64c w/PS $49.95
- ... AND MORE!

619-445-8432

Vintage Computers 520 Silverbrook Drive, El Cajon, CA 92019
Email: vintagecomp@fda.net • Web: www.vintagecomputer.com

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

COMMODORE TRIVIA

by Jim Brain

Welcome to another edition of Commodore Trivia. As many of you may know, these trivia questions and answers have been donated by me to the Commodore community at large. Unlike other articles in *Commodore World*, these trivia questions have been placed in the public domain. I ask only that the trivia questions remain intact and unchanged, and that my name and address appear somewhere so users can contact me. The trivia is also used for a contest I run on the Internet; contact me at the included address for more information. Because curiosity has the best of me, I always welcome a note or postcard detailing where the trivia goes. I also welcome new questions—provided they come with the answers. Enjoy!

Jim Brain
Brain Innovations, Inc.
10710 Bruhn Ave
Bennington, NE 68007
j.brain@ieee.org

COMMODORE TRIVIA #22 QUESTIONS

$1A0 Commodore produced an assembler for the 128 called HCD65. What does HCD stand for?

$1A1 Who wrote most of RAM DOS?

$1A2 What is the name of the first C64 disk copy program? (hint: it sported a "gas gauge".)

$1A3 What was the case color of the original Commodore 64s?

$1A4 There are at least two ways to enter 64 mode from 128 mode on a C128: go 64 and sys 65357. They produce the same result (64 mode), but they differ in at least one noticable way. How?

$1A5 What CPU powers the B-128 computer system?

$1A6 What type of drive mechanisms are in the D series hard drives from Commodore?

$1A7 Commodore produced a 16kB RAM expander for the Commodore VIC-20. What is its model number?

$1A8 Commodore produced at least one disk drive with an optical track one sensor. Which drive?

$1A9 The Commodore PET series used the IEEE bus to communicate with peripherals. Each peripheral had a unique ID. What range of IDs are supported by the PET?

$1AA Many people have developed Commodore software with the PAL assembler. What does PAL stand for?

$1AB Many people remember Compute's Gazette. This magazine is best known for the word processor program it shared with thousands of subscribers. Name the program?

$1AC In some 6502 assemblers, the opcode "bge" is available. It stands for "branch if greater than or equal to". What more common opcode is this opcode referring to?

$1AD If I wanted to do a "blt" (branch if result less than), what 6502 opcode would i use?

$1AE Each Commodore peripheral has a device number, which is associated with a type of device. 8-15 implied disk drive, 4-5 implies printer. These have remained constant from the PET to the C128. However, one peripheral in the PET was phased out and its device number was reused. What device number was reused?

$1AF What is the maximum amount of general purpose RAM can one utilize in a stock C64? (I need an exact number here)

$1B0 What was COMPUTE!'s original sub title?

$1B1 After COMPUTE! was absorbed by General Media, how did the name change?

$1B2 What Commodore content magazine was named after a nautical term?

$1B3 What Commodore content magazine was named after a BASIC keyword?

$1B4 What CPU gets control first when a Commodore 128 is booted?

$1B5 What CPU powered the Commodore C900?

$1B6 How large is the monitor installed in the SX64?

$1B7 What color scheme does the SX64 boot up into?

$1B8 What is printed as the stock SX64 boot up screen?

$1B9 The SX64 has a reset switch behind the door that holds the monitor controls. What is strange about the rest switch?

$1BA What common port is not included on the SX64?

$1BB In the mid 1980's, a company called Berkeley Softworks created a graphical user environment for the Commodore 64. What was it called?

$1BC Berkeley Softworks eventually changed their name to what?

$1BD Most everyone is familiar with MSD disk drives. What does MSD stand for?

$1BE On the NMOS 6502, what two addressing modes have but one opcode each that can operate in that mode?

$1BF How many transfer register opcodes are there on the NMOS 6502?

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

COMMODORE TRIVIA #21 ANSWERS

$180 You had better sit down.... The 1525 is powered by an Intel 8039 8-bit microcontroller. Actually, this isn't so hard to believe, since Commodore didn't actually develop the printer, but used a Seikosha GP-100 printer mechanism for the unit, and most likely contracted Seikosha to develop the firmware.

$181 80. 22 columns per inch times 3.63... inches of usable paper width.

$182 The Juki 6100 printer mechanism.

$183 It is daisy-wheel, but Commodore made other daisy-wheel printers. What makes it unique is that it is the only such serial daisy-wheel made for the Commodore line.

$184 The first to offer some kind of DTMF support was the Commodore 1660 modem. The modem itself didn't provide any DTMF support, but included a cable to allow the SID to output to the phone line. Thus, with the SID's ability to reproduce DTMF tones, the modem could tone dial. Note that this was only possible on the C64, which has a SID. The first model to INCORPORATE DTMF into the modem itself was the 1670.

$185 By develop, we are referring to actually produced models. With that definition, the 1581 holds this title. For models not actually produced, The prototype 1590-D-1 3.5" 1.44 MB model owned by Jack Vander White probably was the last under development.

$186 If you discount the screen area (512 bytes) and Color RAM (512 bytes), up to 28159 bytes can used for BASIC programs and variables (original 3583 bytes and 3 banks of 8192 bytes each), and up to 40448 bytes can be used for ML programs. (0-32767 minus 512 bytes for screen and 40960-49151).

$187 COMPUTE!'s Gazette.

$188 The PET Gazette. The PET Gazette was started in April 1978 by Len Lindsey. For the first year, the magazine was sent out for free to at times 4000 people. In August of 1979, Small Systems Services, headed by Robert Lock, purchased the magazine from Len and changed the name to COMPUTE. The focus changed from PETs to all computer systems at that time. The first issue of COMPUTE. appeared in the Fall of 1979. It seems the relationship between Len Lindsay and Robert Lock was less than ideal, but I refer readers to INFO #15, page 8 for the scoop.

$189 COMPUTE. changed to COMPUTE! Notice the change?

$18A In the mid 1980's, LOADSTAR distributed the type in programs for both magazines in the disk magazine.

$18B The CSG65CE02 CPU, clocked at up to 3.54 MHz in the Commodore 65 (64DX) prototype.

$18C Any byte between 32 and 63 will produce identical results.

$18D chr$(14)

$18E chr$(142)

$18F open 1,0:input#0,a$

$190 The Other Intellect. Evidently, it was the computer the CBM engineers were working on before the VIC-20 project. The name sounds like it was dreamed up after the fact. In either case, this machine might have been the "Color PET" mentioned in *The Home Computer Wars* that Chuck Peddle was designing before the company shifted to the VIC architecture.

$191 32 and 96 or 160 and 224. Space and Reverse space. 103 and 106 or 101 and 116. Left and right lines.

$192 chr$(8) and chr$(9), respectively.

$193 chr$(8) and chr$(9), respectively.

$194 chr$(11) and chr$(12), respectively, while in 128 mode.

$195 108.

$196 To put commas in strings read via INPUT. Remember, INPUT treats a comma (chr$(44)) as a delimiter between input fields, but chr$(108) does not produce the same effect, so you could replace 44 with 108 in data written to disk, and read it in with INPUT.

$197 Jim Butterfield supplies us the answer:

> "The original PET 2001 suffered from the same kind of "screen sparkle" that was later seen in the early Commodore 64. So the original code would write to screen memory only during the "refresh" period; that really slowed down the speed of output to the screen. By the time the first revised PET came out, the screen sparkle was solved, and characters were delivered to the screen with no wait. (The new operating system also did a massive relocation of system variables, and used zero page very heavily, to the dismay of home programmers. When asked about this, Commodore pointed proudly at the "new, higher speed". But in fact it was the screen reorganization that caused 95% of the improvement)." —Jim

Related to this question is $00C, which implies that the "sparkle" problem was fixed in the original PETs, so some people increased the performance of the original PET by setting the RETRACE line mentioned above to an output, which fooled the system into thinking the video was ALWAYS in RETRACE mode.

$198 Borge Christensen and Benedict Lofstedt, although Borge is given the most credit.

$199 The following is excerpted from *The Whole PET Catalog*, page 21:

> "PET PROVEN USEFUL" During the 1980 MGM Grand fire in Las Vegas, Commodore moved its entire COMDEX '80 booth dowstairs to help track rooms, guests, etc. According to *InfoWorld*, 7 PETs with OZZ data-bases (predecessor to SILICON OFFICE) were used for two straight days. Local police agreed they could not have kept of the guests as well as the PETs did. Also, untrained operators quickly learned the system. In the crisis, PET was both powerful and useable.

$19A Bill Seiler, the able assistant to Chuck Peddle, designed the unit.

$19B No answer available yet (I can't find my notes!)

$19C If done immediately prior to an INPUT, the poke will suppress the question mark prompt.

$19D BASIC 1.0

$19E He is one of the founding fathers of the Toronto PET User's Group (TPUG), along with Jim Butterfield.

$19F The name "Sphinx" was chosen because of the way early PETs resembled the Great Sphinx, the Lion with the head of a pharoah.

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

Wheels

Laying More Than a Patch...

by Bruce Thomas

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

"GEOS V2.0... wasn't designed with the flexibility required to handle the hardware that would be developed... Wheels changes all of that."

Someone once said 'The more things change, the more they stay the same'. Obviously, that person never changed from using GEOS V2.0 on a Commodore 64 to using the new Wheels upgrade from Maurice Randall of *Click Here Software*.

The first thing that struck me as being different was the sticker sealing the envelope. This identified the contents as Wheels V4.0 for the C-64 and reinforced the automotive theme by listing my VIN (Vehicle Identification Number). It is not surprising that this theme runs throughout the entire package as Maurice runs his own auto repair shop and used to race cars as well.

The envelope contained a Cerlox-bound manual (46 full size pages plus an Index and Appendix), an insert outlining other software products and planned improvements plus one 5 1/4" disk.

Got a License?

The first thing you need to know, before even ordering your new set of Wheels, is if your system is big enough to drive. Wheels is designed as an upgrade to GEOS V2.0 so you must have an original boot disk. The minimum hardware required in addition to your C-64 (or C-128 in 64 mode) includes a 5 1/4" disk drive (1541 or 1571 preferred), an input device (joystick or better yet a mouse), a TV or monitor of some kind and at least a 1700 (128K) RAM Expander. This last item is the most important as Wheels will not operate without some form of RAM Expansion.

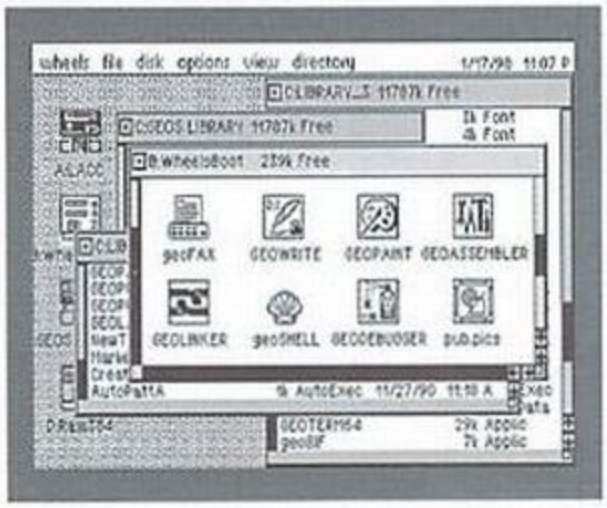
When GEOS V2.0 arrived in 1988 the thought of a single user having 16 MBs of RAM was a pipe dream—on any platform! Today, with my RAMLink max'd out and my SuperCPU topped up, I have 32 Megabytes of usable RAM on my 64.

In 1988 a C-64 ran at 1 MHz. Today we have options of 1, 4, 8 and even 20 MHz speeds.

In 1988, if you were lucky, you could fit 800 KB on a floppy. Today we can put 1.6 Megabytes on a floppy disk using drives still available new (and 3.2 MBs on an FD-4000 if you find a used one).

As you can see, things have changed but, using GEOS V2.0, they nevertheless stayed the same. The system wasn't designed with the flexibility required to handle the hardware that would be developed. As users, we were stuck—unable to go where we wanted to with our new machinery.

Wheels changes all of that. Wheels was designed from the ground up to handle all of the high performance accessories the modern day Commodore user has at his disposal.



Your Wheels boot disk will crank over at 1, 4 or 20 MHz with no changes at all (the Flash 8 unit hasn't been tested). Do you have a populated RAMLink or SCPU? Believe me, there is nothing quite like seeing 15471 KB Free in a 16 MB partition. Do you want to use the Native mode of your FD or HD drives? Support for this is built-in as well as the use of subdirectories to organize your storage.

The more your system has, the better ride you'll get. If you have met, or exceeded, the minimum requirements it is time to get things into gear.

Park It

Before driving your new set of Wheels you need to install it. To follow the theme maybe this should be 'in stall' (as in park your wheels in your stall and register it as yours).

The disk is copy protected and only one file is visible in the directory. The 'Installer' should be run after booting with your original GEOS V2.0 disk. You will be prompted for your name (for the registration papers) and your original disk during the install process. Once the program verifies your boot disk and the condition of your drive it unpacks all of the necessary files and creates your original Wheels Master Disk. Put a write-protect tab on this disk immediately.

Wheels For The First Time

After running 'Starter' (what did you expect it to be called?) the screen turns black as the system loads (use the 'up-arrow'S* JiffyDOS shortcut instead of 'Shift-Run/Stop'. On fast systems your finger isn't off the Stop key before the program loads and you are left staring at a black screen). After a short while an image of a wheel spinner fills the screen.

Before the process is finished you will have to answer a few questions. What type of RAM do you want the system to use? What boot options do you want to be applied to your RAM? What Input Driver do you want to use? These questions only appear the first time you boot the system (or when your hardware changes) and are saved to the disk, which is why your original should be write protected. Any real drives numbered 8 to 11 are identified and installed during the boot process as are your input and printer drivers.

Once Wheels is running you will be looking at the Dashboard. This new System File replaces the Desktop. The screen displays a menu across the top and a clock in the top right corner (flashing 'set clock' annoyingly

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

until you do). The only Icons you will see are down the left side of the screen representing your mounted storage devices.

The active drive will appear reversed compared to the other icons. Double-Clicking on a drive icon will pop up a directory window for the disk/partition identified by the name under the icon. This is where things really start to change.

No Roadside Emergencies

The original Wheels disk contains a program called MakeSysDisk which is used to make spare boot disks or partitions, as well as more Master Disks (MakeSysDisk can only be run from a Master Disk). Keep in mind, though, that your name and VIN are stamped on every Boot and Master Disk you make (and visible in the Dashboard and Toolbox Info boxes). Once you have made a few spares put your original away for safe keeping.

Boot disks can be created on 1541 disks, 1571 single or double-sided disks, 1581 disks and RAMLink, RAMDrive, FD and HD drives with 1581 or native mode partitions. Unlike GEOS V2.0, which had to be in partition #1, Wheels can boot from any partition on your CMD devices and any Drive #8-11 (with exceptions for RAMLinks).

The Dashboard

Maurice really put a lot of effort into programming this new system. He also put a lot of thought into the names he used. The Dashboard may seem like an odd name for a piece of software but, when you think about what is constantly in front of you when you're driving, it makes perfect sense.

Along with your new set of Wheels comes the need for a new way of thinking. Up until now, GEOS didn't allow us to fully utilize our CMD hardware. While it is easy to create subdirectories and partitions on these devices, from BASIC or JiffyDOS, the GEOS system didn't recognize anything but standard Commodore formats.

The Dashboard has easy menu options to create subdirectories and for navigating around your directory structure. There is no chance of mis-using these commands as they are only active if the selected object is a CMD partitionable device or native mode partition.

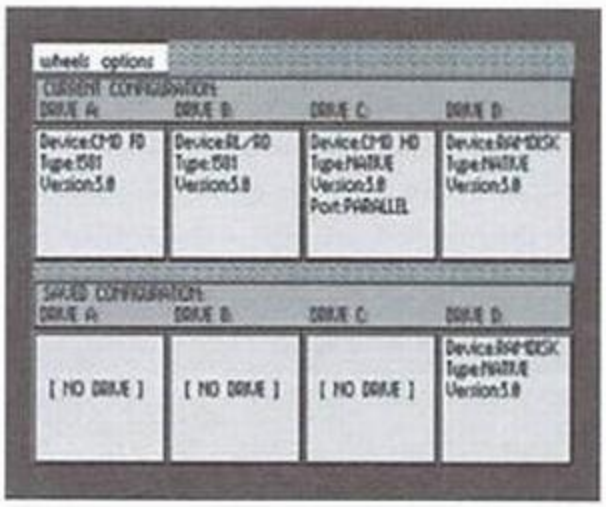
One of the great features of Wheels is the ability to have four drives active at once. Not only can you open windows for each drive but you can copy to/from any window you want to. The windows are totally resizeable and can display from 1 to 20 icons at once. If you prefer, a text display is available and operational also.

Each object on the Dashboard is treated separately and options work on the selected item only. Once you have opened a window you can select the drive icon again. This makes it possible to open more than one partition on a single drive.

Customizable Function Keys provide the user with full control over window contents. Do you want to see just the Applications or Desk Accessories and Fonts? Do you want to see empty directory slots (try the MODIFY setting) or a continuous stream of icons?

The Toolbox—4 Wheels Drives

The Toolbox is an application that can be run by the user at any time. It also runs invisibly during the boot process to inspect your hardware and install the proper drivers. While I previously described four drive operation in respect to the Dashboard it is really the Toolbox that makes this possible.



This program takes the place of Configure allowing you to setup which drives will be active and what format they will have. CMD devices can be installed as 1581's (using 1581 disks/partitions) or native mode devices (accessing 1581 and native mode disks/partitions) changing the disk icon on the fly to indicate the selected type.

The Toolbox even revitalizes your 1581 drive with a special driver that allows it to use 800KB FD Native mode disks. With these disks (yes, the 1581 can format them) you will have full access to subdirectories just as if you had an FD drive (I have both drives and this is cool).

The Toolbox also detects and utilizes an accelerator if one is present. No boot disk customization is required to run with an accelerator. I can disable my SCPU and boot from the same RL partition as I do with my SCPU enabled. Any RAM installed in the SuperRAM card of a SuperCPU is also automatically detected and used by the system. The Schnedler TurboMaster accelerator will power Wheels as well.

Under the Hood

Maurice didn't just replace the Desktop and Configure programs. He rewrote the Operating System Kernel as well.

The changes to the kernel affect the appearance of the menus in all of your applications (no dividing line separates the menu items). Dialog Boxes have been reworked to handle the new hardware (when you see a DISK icon you may be able to access subdirectories in the current partition). In addition to pressing the RETURN key to activate an OK icon you can now press the first letter to activate some system icons ('C' for cancel or 'D' for disk).

Running an application from Drive C or D does not renumber the drives and you have full access to the data files on the drive you run the app on (once you select the DRIVE button you are limited to Drives A and B as that would require a rewrite of each application to change). Don't double-click your data files on Drive C or D as the apps will load but won't find your file. Rather, load the Application and then OPEN your file.

Roadworthy

By now you are likely wondering how all of the new features of Wheels will affect what you have been doing with GEOS. I have run the major BSW apps plus as many auxiliary programs as time permitted under Wheels with no ill effects. Desk Accessories seem to work just as they always did (with special color help). Programs written with four drive capabilities function flawlessly. Your old printer drivers still work under Wheels.

Custom mouse drivers (for the 1351 and SmartMouse) configure the right button for 1 MHz clicking. After years of using a 4 MHz TurboMaster I find this helpful. Quite often the accelerator would have to be manually set to 1 MHz to allow easy selection of a pattern in geoPublish or just the right font size in geoWrite. With a simple right click I can now access what I want easily. Drivers are supplied where the right button double-clicks and also with the buttons reversed for left-handed users.

Maurice has taken a rather bold move in light of the present proceedings against Microsoft. Under the 'wheels' menu there is an option to activate geoShell if it is on your system. Now, Click Here Software isn't as big

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

EXPAND YOUR SYSTEM

3 SLOT CARTRIDGE PORT EXPANDERS

The EX2+1 and EX3 Cartridge Port Expanders bring new expandability to you Commodore 64 or 128. Combine the use of compatible cartridges. Disable cartridges not in use. Change the address your computer finds a cartridge at. Avoid the constant changing of cartridges that puts extra wear on your cartridge port. The EX3 offers 3 vertical expansion slots, while the EX2+1 provides 2 vertical slots and 1 horizontal slot. Both units offer 7 switchable signals per slot, address mapping on slot 2, and a reset button.

CALL 1-800-638-3263

EX3

$34.00 Plus S/H

EX2+1

$39.00 Plus S/H

Creative Micro Designs, Inc., P.O. Box 646, East Longmeadow MA 01028

COMMODORE COUNTRY

Everything for Commodore Computers
Sell • Trade • Repair • Buy
1420 County Rd. 914
Burleson, TX 76028
817-295-7658
817-447-6974 - Voice/FAX line

ALL STORE ITEMS HAVE A 90 DAY WARRANTY. IF, FOR SOME REASON YOU ARE DISSATISFIED IN YOUR PRODUCT, YOU MAY RETURN IT FOR REPLACEMENT OR STORE CREDIT ONLY. SORRY, NO REFUNDS.

C64/1541 Repair - $40
SPECIAL
C64, 1541, J-S+Sft. - $99

We carry a full line of hardware, software & magazines, both new & used, including European items. Our flat-rate repairs include both parts & labor. Call for details. Trade in your unwanted items.

Catalog - $2.95
ALL MAJOR CREDIT CARDS ACCEPTED.

We carry a full line of Amiga Products.

RAYMOND COMPUTER

COMMODORE Software (new and used) plus hardware, expert repairs, cables, ribbons, blank disks, books

NEW Joysticks-leaf-spring, pistol grip-suction cup

Visa / Master Card / Discover / Amex / Bravo
e-mail raycomp@visi.com
795 Raymond Ave. 612-642-9890 vox
St. Paul, MN 55114 612-642-9891 fax

Need Input? It Doesn't Get Any Better Than This...

For years, Commodore set the standard with the 1351 mouse. Sure, it was vastly superior to using old digital input devices like the 1350 mouse or joysticks. But everything can be improved. Guaranteed 100% 1351-compatible, SmartMouse does everything the C-1351 does and more! This highly intelligent, three-button input device includes a built-in battery-backed Real-Time Clock, along with double-click and Turbo features for GEOS. Plus, it comes with a complete set of utilities for using the clock in GEOS and BASIC applications. Modern ergonomic designs makes SmartMouse a smooth operator that's a pleasure to use. So, if you're tired of the slow, erratic movement of your current input device, make the intelligent choice and pick up a SmartMouse today!

$49.95 Plus S/H

SmartMouse is the Most Advanced Mouse Ever Created for the Commodore 64 and 128 Computers!

Smart MOUSE

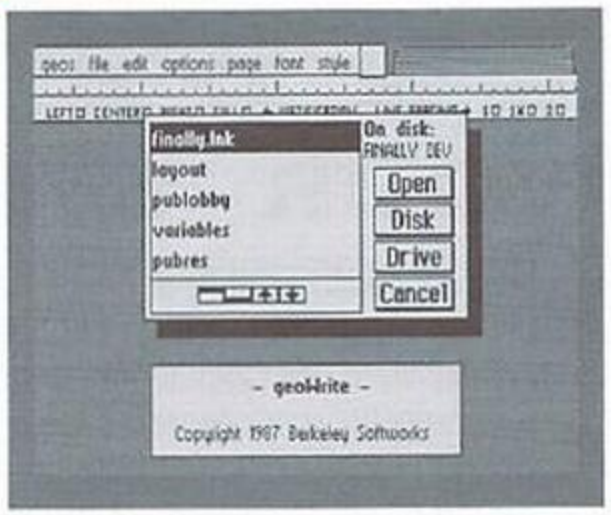
- **Three buttons means convenience! If you're a GEOS user, the left button is configured as single click, the right as a handy double click and the center button is the TURBO button which doubles the speed at which the pointer moves across the screen. All three are fully programmable for other application.**
- **SmartMouse uses the same custom gate array chip as the Commodore C-1351 mouse to guarantee 100% compatibility.**
- **Switches easily into joystick emulation mode on power-up by holding down the right button.**
- **SmartMouse utilizes the same advanced technology used in today's powerful 486 and Pentium PC's, providing you with unparalleled accuracy and smoothness.**
- **Built-in battery-backed Real-Time Clock automatically sets the GEOS clock, displays time and can be used in your own programs.**
- **Includes utilities disk and detailed manual explaining the utilities and programming information.**
- **Attention Lefties! SmartMouse can be altered for left handed use.**

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

"Wheels provides a way to do things that we couldn't do before."



as Microsoft and, as far as I know, nobody else offers a CLI for GEOS, but Maurice may be asking for trouble down the road. All in all this integration is a welcome addition and some new geoShell commands ship with Wheels.

Potholes

While the overall manual is well written, and covers a lot of what the system can do, I found a number of items that were lacking.

While Maurice kept most of the keyboard shortcuts from the old Desktop some have changed to accommodate new features (C= M is now Make Subdir instead of Rename File). Care must be taken when using shortcuts as some depend on which Dashboard object is active. After adjusting to the highlighted object concept there are still some surprises is store.

An important example is the C= E shortcut to 'erase' a file or disk. The first time I used this I opened the boot partition on my RAMLink and then changed the partition in the open window. While the contents of the window changed, the name under the icon didn't (this facilitates the multi-partition concept mentioned earlier). The disk menu commands function on the disk/partition named under the icon while I was expecting to erase the highlighted object (in this case, the open window). Luckily a dialog box opens up asking for confirmation of the process. This DB presently only lists the Partition number and not the name so it would have been easy to erase my boot partition if I hadn't been paying attention.

One function of the Toolbox that works almost too well is removing drives. To set up your system the way you want you can remove or add drives into any available spot. The first time I tried this I thought I would move them all around and so removed all of my drives from the configuration boxes. When I tried to add another drive I was instructed to insert a disk with the Toolbox on it. Can you all say REBOOT? Anyhow, this isn't in the manual so take it from me - DON'T REMOVE ALL OF YOUR DRIVES IN THE TOOLBOX!

1581 subdirs are not supported and will crash the system. A native mode subdir will have an icon like a folder with CMD marked on it. A 1581 subdir shows up as a Commodore 64 file—don't try to open it.

As mentioned, the TurboMaster will work with Wheels but no explanation is provided. Due to the configuration of this unit it requires some special handling to work with a RAM unit. While an adapter was made allowing it to run under GEOS with a 17xx RAM unit this won't work under Wheels. You need a geoRAM or bbgRam unit plus a cartridge port expander to run Wheels at 4 MHz.

Chapter 7 in the manual covers a number of applications and utilities that won't work with Wheels. These include DBGetFiles (Wheels can handle up to 255 files in the requestor box so this is no longer needed anyhow), geoCanvas, geoWizard and most screen savers. Basically, any program that patches the kernal or allocates expansion RAM will have trouble with Wheels and the new manner in which the hardware is handled.

Included with the package is a listing of some features not implemented in this release. These include an ashtray and printer icon on the Dashboard, integrated screen saver, drive swapping in the Toolbox (the Dashboard supports drag and drop swapping for all four drives in the same manner the Desktop did) and a RESTART program that will maintain the contents of a RAM disk. The Info Box can't be viewed at present but the InfoViewV2 DA works well for now. Also missing is the ability to automatically set the clock from any detected time device during bootup; here again various Auto-execs like CMDTime work just fine.

Maurice is working on filling many of these potholes and plans to have the next release finished in the fall (as well as Wheels128). If you purchase Wheels now you will receive the next release free provided you send in your registration. The original program comes on 5 1/4" disk only but the upgrade will be available on 3 1/2" disk also.

Maurice has an excellent track record of sending out upgrades as evidenced by his distribution of geoShell and geoFAX and he is open to suggestions for new or improved features. Knowing Maurice's track record I know these Wheels won't stop rolling until they are better than the top-of-the-line all-season radials anywhere. Needless to say, there will be plenty to discuss in future *Graphic Interpretation* columns.

Cruisin'

The ads for Wheels feature a nifty little slogan: "*Let's roll down our windows and go cruisin'*". While it alludes to the freedom the system offers I don't like this slogan.

We can cruise all right—and at any speed we want to, but Windows are what Wheels is all about. In fact, you can open 16 windows at one time (and from the same drive if you want). Rolling our windows down out of sight is the last thing we want to do with Wheels.

The system offers many enhancements over GEOS V2.0. Not only in the interface we use but also in the advanced use of our hardware. Just as GEOS originally did for the C-64 in 1986, Wheels provides a way to do things that we couldn't do before. That is why we need Wheels—to go places. Places we may never have taken our hardware before, but always wanted to.

It is for that reason that I propose a new slogan for this system. Wheels—taking you where you want to go today.

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

COMMODORE WORLD

The only real magazine for C-64/128 users

For more than two years, Commodore World has empowered C-64/128 users by providing the latest news and information on the world of Commodore computing. Through our staff of leading experts like Maurice Randall and Gaelyne Gasson, we keep you in touch with new technologies and further explore those features which have made the Commodore great! Subscribe or renew today!

Call 1-800-638-3263

and subscribe or renew now!

Please begin my subscription to Commodore World as soon as possible!

Subscriber Information

Name: _____

Address: _____

City: _____ State/Prov. _____ ZIP/PC: _____

Country: _____ Phone: ( ) _____

One Year Subscription (Eight Issues)

United States.....$29.95 Canada & Mexico.....$35.95

Europe (EC Only).....$45.95 Other Foreign.....$57.95

Back Issues:

Single issues $4.95 each plus $2.00 shipping. Three or more back issues $4.00 each plus $1.00 each for shipping and handling.

Payment Information

❑ Bill me later (one year subscriber only)

❑ I've enclosed a check or money order in U.S. Funds

❑ Bill subscription to my credit card: (Check one)

❑ Visa ❑ MasterCard ❑ AMEX ❑ Discover

Card Number: _____ Exp. Date: _____

Signature: _____

Mail payments to:

CW Subscriptions
c/o Creative Micro Designs, Inc.
P.O. Box 646
East Longmeadow, MA 01028

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

A MODULAR PROGRAMMING SYSTEM FOR THE COMMODORE 64

GOFA

by George Hanagan

GOFA is a program management system that allows a group of BASIC programs (any of which may include an ML program area) to occupy memory at the same time and interact using special goto and gosub calls. The programs are not appended to one another; while each program begins immediately after the end of the preceding program, all are dealt with seperately through carful manipulation of BASIC pointers. Each program (except the final one) must have either a *GON* or a *GOX* command at the start, or after any code that the programmer elects to have executed on start up, such as the loading of *USR* vectors or execution of *DEF* statements.

Programs are numbered by GOFA in the order it finds them in memory and they are referenced by that number. In all cases, the first program loaded—prog.0—must be the GOFA operating system. BASIC programs in any position may be edited and the group may be saved as a single program file, as single programs, or in sub-groups. Machine Language routines may be stored within a BASIC program that usually consists of a single line of BASIC containing a GOFA command which reserves and maintains the space for them.

All GOFA programs are loaded using the normal BASIC *LOAD* command. Programs containing non-relocatable ML should be loaded first, otherwise their position in memory would be changed by editing any preceding BASIC programs.

Compatibility

GOFA is offered to enthusiasts who enjoy creating their own programs. It has a very fast wedge at $0308 and does not use any RAM outside the BASIC program area.

GOFA began life on a C-64 with an EPYX Fast Load cartridge and during its development, the EPYX was replaced by the amazing SuperCPU with 4 MB of SuperRAM. There are no compatibility problem with either of these devices, but any program or device that changes the wedge at $0308 would not be compatible.

All BASIC commands operate normally and the system may be used by novice BASIC programmers. Any BASIC program may be run (as the last program) without change except that the *RESTORE* command must be used before reading *DATA* statements. Each intermediate program must execute a *GON* (or *GOX*) command that locates the next program and stores its address.

Commands

The number of commands added to BASIC has been kept to a minimum, with a few added for the convenience of ML programmers. A complete list of the commands and what each does can be found in the *GOFA COMMAND REFERENCE*.

Theory of Operation

At the heart of GOFA operation are the *GO#S...* and *GO#T...* commands. These place the target program's start address in the *Start of BASIC Program Text* pointer (locations 43/44) and then change the contents of the *Current BASIC Line Number* variable (locations 57/58) to a value larger than the maximum normally allowed by BASIC (63999). The latter is accomplished by placing a hex value of $FA in location 58, while the number of the calling program is placed in location 57. This results in a line number of 64000 plus the program number. The name GOFA is actually derived from the BASIC keyword *GO* and the hex value placed into location 57 (FA).

The *GOSUB* or *GOTO* token (as appropriate) is then loaded for execution by BASIC in the usual way. The search for the line number will begin at the (new) program start address, that is, in the destination program.

Program Management

Using BASIC's linker (line-chaining routine at $A533), the *GOX* (or *GON*) command locates the ending address of the BASIC part of a program, adds 2 for the double–zero end, then calculates the start address of the next program by adding the number of bytes specified by the parameter (if any) following the *GOX* command. This next address is stored in a table, a zero is stored at this address minus one, the program lines are relinked, and the program is executed.

Variables are cleared by the *GO* command (via *SYS2102*) and when a nul program is created by the *GON* or *GOX* commands. (As usual, BASIC clears the variables and stack when any error occurs—even omitting the '?' from something like *?PEEK(2071)* in direct-mode!) An *OK* message is given on executing a nul program, when variables (and functions) are available for keyboard access. No program can be accessed until it has been logged, so each run should begin at prog.0, usually by using the *GO* command.

Programs cannot be assigned any arbitrary program number; programs are numbered in sequence, and referenced only by that number. It is recommended that the BASIC utility program be loaded as Prog.3, so that its routines may be accessed by other programs in memory as subroutines (using *GO3S...* commands to call the desired routines).

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

Creating Prog.0

Creating Prog.0 is not an easy exercise for the novice programmer, because the ML is to be stored very close to the normal start of BASIC. A simple loader has been provided to make this task easier—it prints out the required direct mode operations, so that the user only has to press [RETURN] when the cursor begins flashing on the instruction. Before running the program it should be saved, using a name such as 'create prog.0', because 'prog.0' will overwrite the 'create prog.0' program.

Creating a Suite

Prog.0 contains the GOFA system and begins at the normal *Start of BASIC Program Text* (2049).

```
0 SYS2102:GOX1091
```

This has already been described above. When loaded as a single program, *RUN* will produce *OK* and *READY* messages, indicating that Prog.1 may now be entered or loaded.

Prog.1 should be contain the programmer's frequently used ML routines, GOFA system extensions, wedges, etc.. Enter the following BASIC line:

```
1 GOX1001
```

Or if no ML storage is required here, enter:

```
1 GON
```

Then enter *GO*. The *READY* message (and *OK* if *GO* is entered again—see BASIC+ML) will indicate that the system is ready for Prog.2. The 1000 bytes suggested, is a reasonable size for Prog.1. SuperCPU users could locate one or more direct pages in this area. (BASIC's direct page is zero page, but the '816 CPU permits the user to specify other direct pages.) Short routines for swapping the direct page, changing data banks (of SuperRAM), block moves, etc, as well as a host of short C-64 utilities would be stored here, for whenever required. If less than 1000 bytes are required initially, leading zeros or spaces should be used, so that the number may be increased at a later time without disturbing ML programs already stored.

Prog.2 should be reserved for longer ML routines, which may be non-relocatable, but these would have to be recompiled if the length of Prog. 1 were changed. The choice of Prog. 2 will depend on the application. Alternatively, Prog.2 could be an all BASIC program storing notes and addresses of the ML programs in Prog.1.

```
2 GON
```

As no program is required in this position at this stage, the gofa command 'gon' is entered as a BASIC line. Then enter *GO*.

Prog.3 is suggested as the BASIC utility area and will contain 'def' statements, information about the ML programs (such as SYS addresses), subroutines for setting up the ML programs (such as USR function vectors) as well as other frequently used BASIC subroutines and direct-mode strings.

A short Prog.3 listing has been provided as a model to illustrate the organization and content of this program. Routines for

GOFA COMMAND REFERENCE

GOFA COMMANDS FOR BASIC

GO	Goes to Prog.0 and executes a normal BASIC *RUN*. It operates in direct-mode only. Prog.0 executes a *SYS2102*, which installs the wedge. This latter call will recover the system if you have used *LOAD "NAME",8,1* to load machine language into the standard areas; it also recovers all programs that were in memory at the time of a reset and clears halt-mode if issued in direct mode.
GON	Goes to the next program and runs it. BASIC's *CLR* routine is called by *GOX* in Prog.0, but not by *GON* or *GOX* in the other programs. It operates in run-mode only. A *?SYNTAX ERROR* is generated if *GON* is followed by numerals.
GO#	Goes to Prog.# (where *pr* is a number 0 thru 9 which represents the program number) and stops with the *READY* prompt. The name of a variable cannot be used for *pr*. If Prog.*pr* is not in the table, a *BAD SUBSCRIPT ERROR* is given.
GO#S...	Goes to Prog.# and executes a *GOSUB* to the line number specified in the ... parameter. As with BASIC, if no line number is given then line number 0 is presumed. The normal BASIC *RETURN* command returns program execution to the calling program. See *Error Messages* for additional information.
GO#T...	Goes to Prog.# and executes a *GOTO* starting at the line number specified in the ... parameter. As in BASIC this begins (or continues) a *RUN* without *CLR* at line *ln*. (*Note: A* CLR *is always performed first if Prog.0 is the specified program.*)
GOH	Enters halt-mode and runs the current program, but stops in the next program with the *READY* message whenever a *GON* or *GOX* command is executed. The next program is relinked, but not run. See Halt-Mode.

GOFA COMMANDS FOR ML

GOX###	This command should only be used by expert programmers. The ### parameter represents the number of bytes to be reserved for ML program storage. Users should not experiment with this command—it controls memory that the BASIC Editor knows nothing about! This command operates in run mode only, and is further described under *Program Management*. (*Note:* GON *is a safe form of* GOX *for non-ML programmers.*)
GOZ###	This command stores the result of a calculation made as for the GOX### command, but stores it in lo-byte, high-byt format at locations 2000,2001—without other action.
GOY###	Executes a SYS command to the address calculated as for GOZ###. No checks are made.

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

alternative colour schemes would also be a popular inclusion.

Users will have their own set of subroutines for Prog.3. As always, *GO* is entered after loading, entering or editing a program. The program runs until it reaches the *GON* command in line 153 of prog.3. A nul prog.4 is then created to prepare the system for the user's Prog.4.

Prog.4 will be used by programmers for their longer BASIC subroutines, or sets of subroutines, such as those used for special formatting and graphics. Enter:

```
4 GON
```

The choice of Prog.4 will depend on the main program. Enter *GO* again to prepare for Prog.5.

Prog.5 will usually be the main program. It will call subroutines in the other programs, using for example *GO3S33* to *GOSUB33* in Prog.3. If other programs are to follow, this program must also have a *GON* (or *GOX*) command. The last program may require a *GO#T...* command to go to an earlier program on completion of the logging sequence. The destination line must be beyond the program's *GON* command to avoid looping. Alternatively, the *GO#T...* command may be given in direct-mode.

The demonstration program in the listing entitled Prog.5 uses the jiffy clock *TI* to measure the time taken to fill the screen with "X" characters by poking the code (24) directly into screen memory. The clock indexes 60 times per second, so the change in the count is divided by 60. The unsightly print output should be compared with that shown corrected to three decimal places by the simple formatter in the utility program, Prog.3.

Run times of the *FOR-NEXT* loop are very dependent on the position, in BASIC's variable list, of the variables used in it. With "J" and "A" first in the list, a time of 3.550 is required by straight BASIC, 3.633 by GOFA and 0.167 by GOFA with the SuperCPU. Because GOFA checks every *NEXT* command to ensure its destination is within the current program, this is a severe test.

Stop a run with the *STOP* key after a few lines of X's have been written, then try *GO3S33*, then *GO2* and finally *LIST*. Now enter *CONT* and you will see the screen filling continue from where it was stopped.

Programs 6 to 9 are allowed for if required. Note the use of the program number as the number of the first line of each program. This is a useful identifier when *LIST* is used after a BASIC error message, or when using the *GOH* command. It is not required by the system. (See *Housekeeping*.)

Editing

In direct mode, *GO#*, where # represents the required (single digit) program number, enters that program at the *READY* prompt. The program may then be listed and edited in the usual way.

A screenful of lines listed from one program may be transferred to another program, simply by a 'go#' to the destination program and pressing 'return' on each line (after changing the line number, if necessary). After this edit, 'go' (or one or more 'goh' commands) must be used to return to the source program for more. In this situation it is useful to insert a 'stop' command at the start of the higher numbered program.

A program is deleted by the *NEW* command, but this also sets the end address so that all higher numbered programs are also unavailable. This situation can be reversed, but not by *UNNEW*. Use reset (*POKE 2050,0* will do) followed by *GO*.

It is not possible to completely remove a program by deleting all its lines; a nul program would be created at which the logging process would cease. (Inserting a line that includes the *GON* command will return the higher numbered programs to the address table.) A program within a suite may be deleted by appending the next program to it, so there is then one less program. Unwanted lines may then be edited out. See *Appending*.

PROG.3

```
196  3 goto73:rem"Prog.3 of 23-1-98
254  13 list453-:rem information section
131  23 goto263:rem sound the gong!
111  33 goto173:rem find last go#...
223  43 goto383:rem addr k3 line n3 prog p3
150  53 goto293:rem v to v$ in n% decimals
206  63 rem
191  73 printchr$(14):rem initial set up :-
120  83 def fn d(p)=peek(p)+256*peek(p+1)
236  93 rem"SuperCPU BASIC Optimization :-
 77  103 poke53374,0:poke53366,0:poke53375,0
186  113 gosub233:rem"set up DONG sound
 67  123 rem direct-mode strings :-
126  133 x$="goz:p045,pE(2100):p046,pE(2101)"
168  143 j$="j=fnd(43):p0j-3,32:p0j-2,32"
  2  153 gon
 52  163 rem the subroutines :-
201  173 p3=peek(2068):if p3=0 then213
 11  183 n3=fnd(2069)
200  193 print"last go# op: line"n3"prog."p3
 88  203 return
 31  213 print"no go# op made":return
111  223 rem
238  233 g3=54272:forj3=1to24:poke j3+g3,0
 14  243 next:poke g3+1,20
208  253 pokeg3+5,9:pokeg3+6,9:pokeg3+24,15
  0  263 pokeg3+4,17:pokeg3+4,16:return
161  273 rem
 69  283 rem"v to v$ rounded to n% places
157  293 v$=str$(int(v*int(10^n%)+.5))
  3  303 s$=left$(v$,1):w=len(v$)-1
```

PROG.3 (cont.)

```
 33  313 v$=right$(v$,w):if w>n% then343
156  323 v$=s$+"0."+right$("00000000"+v$,n%)
199  333 return:rem n% range 0 thru 8
 46  343 w=w-n%
136  353 v$=s$+left$(v$,w)+"."+right$(v$,n%)
 38  363 return:rem correct at 8 out digits
  6  373 rem
  2  383 k3=fnd(2072+2*p3)
163  393 if k3=0then423
106  403 if fnd(k3+2)=n3 then423
 11  413 k3=fnd(k3):if k3>0then403
202  423 print"Line"n3" Prog"p3"
203  433 if k3then print" Address"k3:return
103  443 print"Nonexistent":return
 78  453 stop:rem"Lines to be listed only
 45  463 ''sys2324' will replace 45,46 from
219  473 '2098,2099 (stored end-of-program).
255  483 ''poke2096,0:go0' [or other], then
 26  493 ''?pE(2127)' reads stack pointer but
136  503 ''poke2096,0 disables extra 'cont'
```

PROG.5

```
184  5 rem fnd,p,g3,j3,x$,j$ (used prog.3)
 71  15 a=24:s=1024:f=2023:print chr$(147)
 38  25 poke 214,8:rem go to line 8
206  35 ts=ti:forj=stof:pokej,a:next:tf=ti
251  45 print chr$(147)
182  55 v=(tf-ts)/60:print v"sec."
 22  65 n%=3:go3s53:print v$" sec."
203  75 end
```


http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

Loading and Saving

As the starting address of each program (beyond programs 0 and 1) is variable, all program loads must use a secondary address of zero. Loading a BASIC program with '*LOAD "name",8,1*' will almost certainly overwrite and crash the system! The *GO* command must be used after each load, although a stand-alone program may be *RUN* after loading. (See also the *GOH* command.) It is not necessary to use *NEW* after loading an ML program to the 49152 block, or to the Tape Buffer using '*LOAD "name",8,1*'. Simply enter *GO*.

The normal BASIC *SAVE* command saves from the address in locations 43/44 to that in location 45/46; that is, the current program and all others of higher number. Entering *GO0* followed by the usual *SAVE "name",drive* will therefore save the whole suite of programs (including the system program) as a single file. Loading a BASIC program will replace the current program and all higher numbered programs, so these should be saved first, if not already saved.

The sequence to save, for example, Prog.4 alone (when there are higher numbered programs) would be: *GO5, NEW, GO, GO4, SAVE "PROG.4",8*—each command entered separately in direct-mode. The *NEW* command creates a nul (double zero) Prog.5, that is saved with Prog.4, but this is usual and not a problem. However, users should be aware that any variables or functions created by preceding programs (before their *GON* commands), will corrupt the original Prog.5, during the next logging sequence. It cannot then be recovered by *UNNEW*.

Experienced programmers may save an intermediate program, without losing either programs or variables, with the aid of the very useful 'goz' command. See *GOFA ML*.

Error Messages

GOFA does not modify BASIC's error routine—it uses appropriate BASIC error messages. Unfortunately, these messages print the line number stored in locations 57/58—the same copy that is changed by the *GO#...* commands to 6400# (where # is the program number). Therefore any error in statements following a *GO#...* command (including a SYNTAX ERROR following the program number in the command itself) will be reported as occuring in line 6400#. For this reason, GOFA stores the line number and program number whenever it changes the contents of locations 57/58 in program mode.

To locate the error, a short BASIC routine is kept in Prog.3, that will print out the program number and line number of the last *GO#...* command that was made in run-mode. This is accessed by *GO3S33* in direct-mode.

When, for example, *GO3S400* occurs in Prog.5 when there is no line 400 in Prog.3. BASIC gives the message *UNDEF'D STATEMENT IN 64005*—indicating that it was a GOFA command in Prog.5 that caused the error. Users should note that the run stops in Prog.3—where BASIC was searching for the line—so that to cursor up to the error (if it happens to be still on the screen) and edit it will only compound the error.

BASIC Statements

All BASIC statements involving *GOTO* and *GOSUB* commands have their equivalent *GO#T...* and *GO#S...* commands and require the same or less space in listings. In addition, an *IF X GO#S...* command is valid, whereas *IF X GOSUB...* is not provided in BASIC (*GOTO, GO TO* and *GOSUB* remain valid). Because the wedge looks only at the first byte of a BASIC statement, both the *IF* and *ON* commands are handled by GOFA, with *THEN* directed back to the wedge. A small speed gain may result from the dedicated routines.

Users should be particularly careful not to begin using a *FOR-NEXT* loop when another, using the same *FOR* variable, has not been concluded. BASIC will use the original *FOR* statement with the later *NEXT* value of the variable, without any immediate error message. This error is easy to make when going from one program to another, because the variables and stack are shared. To prevent it, use specific variable names for the *FOR* variable—such as *J3* in prog.3, *J5* in prog.5, etc..

Whenever a block of BASIC is to be used by more than one program, it should be placed in a subroutine where each program may access it from its own *FOR-NEXT* loop.

Change to *CONT*

When GOFA is processing any *GO#...* command *in direct-mode*, it stores the current program number and all the BASIC continue parameters, as well as the stack pointer; but only if this has not already been done, that is if location 2096 (the stored copy of location 62) is clear. The user is then free to list information, execute commands and even run subroutines in other programs for diagnostic, or other purposes.

When *CONT* is entered, the stored *CONT* parameters have priority and are used, the stack pointer is replaced and location 2096 is cleared. The *CONT* token (154) is then loaded for execution by BASIC. In this way, the original program that was stopped—whether in the logging sequence or later—is the one that is continued. (This action may be stopped by entering *POKE 2096,0* before entering *CONT*.) If a program is to be run again, using a direct-mode *GO#T...* command, use *POKE 62,0* to prevent *CONT* returning to the end of the previous run. (Stored by BASIC in location 62)

The number of the program executed by the *CONT* command appears on the screen. See warning about *FOR-NEXT* under *BASIC Statements*.

Halt-Mode

The programs may be stepped through the logging sequence by repeated *GOH* commands, but it is better to use repeated *CONT* commands. To begin in prog.0, enter *GOH*, then *GO*, then use *CONT*. Because execution stops on the next *GON* or *GOX* command, *LIST* will list the program following the number already printed by *CONT*.

Halt-mode is cleared when the last program is reached and also by *SYS2102* in direct-mode. Halt-mode should be cleared before any *SAVE* that includes Prog.0, otherwise the system will begin in halt-mode when next loaded. (*POKE 2097,0* may also be used to clear it.)

Direct-Mode Strings

It is not possible to use subroutines in Prog.3 for all a programmer's direct-mode diagnostic requirements, because the programmer may not wish to be in Prog.3 when the required operation is made. The answer to this problem is to have the required code stored in a string variable. Then, for example, entering *?X$* would print the code for the operation on the screen, ready for use. Abbreviated command names may be used in strings.

GOFA ML

Changing the numerals after *GOX* (or deleting a BASIC statement containing a *GOX###* command) after the command has already been processed by the *GO* sequence, will cause—on the next *GO* sequence—an address to be calculated that is not the correct address of the next program. The system will therefore crash—unless the program is the last program and the *GOX* number was increased.

For Prog.1, simply enter *GO1* (and *LIST* if required) and then enter *NEW*. Enter the changed line and then enter 'go'. (Prog.2 and above should first be saved.) ML programs already stored in Prog.1 will not be disturbed, provided that the changed line consists of the same number of bytes. Do not create any variables between *NEW* and *GO*, because they would overwrite the ML.

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

Prog.2 may be altered using the same method, while a *GOX###* command in a higher numbered program may be deleted if followed by use of the direct-mode string *X$*, given at line 123 of prog.3.

A program may be saved, even when it is not the last program, by using the direct-mode string *X$* while in the program and then using the normal BASIC save. Variables must not be used—use a numeral for the drive number. Then restore 45/46 using sys2324 to recover all variables. For a group of programs, use the *GOZ* part of *X$* in the last program to be saved, then *GO#* to the first program to use the rest of *X$*. Save the program and restore the vector and variables as before.

If ML programs for GOFA are compiled with a double zero beginning, they may be loaded using the normal BASIC *LOAD "name",8* after changing the 43/44 vector to the required address. The *SYS* address will be 2 more than the load address. (The double zero prevents the linker from corrupting the program.) When done, *GO* will replace the 43/44 vector.

Both vector 43/44 and vector 45/46 may be changed to save an ML program in the $c000 block using the normal BASIC *SAVE"name",8*—being sure to use a numeral for the drive number. Using *GO* will replace both vectors.

DATA

In response to *READ* commands, BASIC begins its search for *DATA* statements at the address that was stored in locations 65/66 by the *CLR* routine or by the *RESTORE* command. The search ends when and end of program double zero is reached. As the *CLR* routine is used only in Prog.0, an *OUT OF DATA* error will result on attempting to *READ* data without first executing the *RESTORE* command in the program containing the data. The *DATA* may be read by a program other than that containing the *DATA* statements, provided the *RESTORE* command is executed in the *DATA* program (by using *RESTORE* in a subroutine.)

Housekeeping

When several programs 1 and 2 have been created, it is useful to give each a file name that includes a number and to use the same number as the line number of its (single) BASIC line. Any number ending in 1 would be a Prog.1 and any ending in 2 would be a Prog.2. (Line numbers large or small, always occupy two bytes.)

When this is done, it is easy to identify which version of Prog.1 and Prog.2 is present in a suite of programs loaded as a file. For Prog.3 and higher, *REM* statements should be used to label different versions.

When using a *TRACE* program, it is useful to have all line numbers ending in the program number, for example in prog.3 use 3, 13, 23, etc.. This is provided by line numbering and renumbering programs. Such programs do not change the destination line numbers of GOFA commands, so the normal BASIC *GOTO* and *GOSUB* commands should be used within a program.

Appending

To join two programs, for example, to append Prog.7 to Prog.6, enter 'go7' and ensure its line numbers are larger than the last line of Prog.6. Then enter *?J$* to print the direct-mode string *J$* that was defined in Prog.3. Cursor up to it and press return to execute the code. It writes two spaces, one over the end-of-line zero at the end of the last line of Prog.6 and the other over the first of the two end-of-program zeros.

Prog.6 then includes the former Prog.7. After *GO* is used, the address of the former Prog.7 will disappear from the table, with the former Prog.8 becoming Prog.7, etc. The first (lower numbered) program must be all BASIC—a program cannot be appended to a program that has a *GOX###* command. (Programs may also be divided.)

Advanced GOFA

In this introduction to the GOFA system, programs have been loaded in turn and accessed by *GO#S...* and *GO#T...* commands. More advanced programmers may use the *GOX###* commands to create space into which relocatable ML programs and BASIC programs may be loaded in run-mode. This space need not be saved—use *X$* to remove it from memory before saving.

Data statements, in any desired format, may be generated using BASIC, by storing the tokenized bytes into space created by a *GOX###* command. The BASIC *DATA* statements are then revealed as another program by replacing the *GOX###* command with a simple *GOX* or *GON* command. (Any numbers may be used as line links as long as the hi byte is not zero. GOFA will correctly link them.)

GOFA's jump to *UNDEF'D FUNCTION* error may be changed to a jump to ML code—usually in Prog.1—where users may define their own *GO...* commands.

MetaBASIC

MetaBASIC (COMPUTE!s' Gazette April 1985) is a very useful programming aid, popular with C-64 programmers. It is compatible with the SuperCPU (with JiffyDOS disabled) and after a simple modification, it is compatible with GOFA. The modification is required for the *TRACE* and *TROFF* commands which install and remove a wedge at $308—the GOFA wedge position. *QUIT* restores this wedge to the BASIC 'reset' position and therefore also quits GOFA. This is easily reversed by *SYS2115*, without loss of variables. The required modification is made as follows:

```
LOAD "METABASIC",8,1:SYS64738
POKE39153,90:POKE39154,8
POKE39156,90:POKE39161,8:SYS36864
BSAVE"METAGOFA",36864,40961
```

then if in GOFA, enter:

```
SYS2102:GO
```

After the READY prompt appears, once again enter:

```
GO
```

The *SPEED###* function slows the SuperCPU's turbo mode screen writing, without any noticeable effect on its processing speed. *SPEED255* is slower than normal BASIC, while *SPEED0* is full turbo speed. Among many useful commands, the *TRACE* feature is very instructive with GOFA—especially if programs are given line numbers whose last digit is the program number. (The *DUMP* command proved faulty on reading a function name and *MONITOR* was not tested.)

Quitting GOFA

The gofa system was designed to enhance the basic system for the use of all BASIC/ML programmers, but many useful programs—such as assemblers and word processors—must have use of all the basic program memory and therefore cannot operate under GOFA. To quit gofa it is necessary to use a cold start (*SYS64738*), power off or a reset button to remove the wedge.

Important Notes

Never load a program using a secondary address (i.e., *LOAD"name",8,1*). Always use *LOAD"name",8* or equivalent.

After loading a file, the *GO* command should be used to effect a restart and ensure the integrity of the program address table.

Dividing a *FOR-NEXT* loop—with the *FOR* statement in one program using (by accident or design) the 'next' command in another program—will produce a *NEXT WITHOUT FOR* error. Do not go to a *FOR-NEXT* loop having the same *FOR* variable as another that has not been concluded. This will produce

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

unintended operation and may also produce a *NEXT WITHOUT FOR* error.

The *GOX###*command (where *###*represents one or more non-zero numerals) should only be used by ML programmers who understand the difficulties involved in entering, changing and deleting it.

Always use *LIST* to check a program's identity, before editing.

Enter *GO0* before attempting to save (using the normal BASIC *SAVE*) a suite of programs as a single file.

Use the *RESTORE* command in a program containing *DATA* statements.

Recover from a reset with *SYS2102:GO*. Or use *SYS2102:GOH* to begin halt-mode, then use *CONT* to step through the logging process to locate an error there. Do not use *UNNEW* except in the last program.

Expect an extra run time of about one second per minute taken by a straight BASIC system.

√Σ	GOFACREATE
23	10 rem creates prog.0 : george flanagan
198	15 rem save your work, before you run it
152	20 rem because program is destroyed ***
48	25 for j=49152to50209:readd:pokej,d:next
247	30 printchr$(147):print"press 'return'";
7	35 print" on each cursored line :-"
120	40 poke214,5:print:q$=chr$(34)
56	45 print"0 sys2102:gox1091
112	50 print"k=49152:forj=2100to3157:";
111	55 print"pOj,pE(k):k=k+1:next:";
126	60 print"rem wait for cursor!"
47	65 poke214,10:print
73	70 poke214,13:print"poke2099,0:run"
174	75 poke214,16:print"go0"
31	80 print"save"q$"prog.0"q$",8"
20	85 poke214,3:print
129	90 poke43,1:poke44,8:new
238	95 rem
115	100 data 0,0,162,0,142,23,8,134,62,32,228,8,32,243,8,169,104,141,8,3,169,8
122	110 data 141,9,3,96,0,250,0,0,201,130,208,40,32,7,12,201,203,240,102,201,145
95	120 data 240,33,201,154,208,25,76,73,9,165,62,208,3,141,48,8,32,115,0,201,139
151	130 data 144,220,240,13,201,142,240,65,176,219,56,76,231,167,76,155,11,32,115,0
45	140 data 32,158,173,165,97,208,13,160,0,200,177,122,208,251,32,251,168,76,174
246	150 data 167,32,121,0,201,137,240,23,201,167,240,8,160,0,140,78,8,76,177,11,32
103	160 data 115,0,176,7,32,160,168,76,174,167,168,208,181,32,115,0,32,88,11,169,0
27	170 data 141,78,8,32,115,0,176,3,76,211,9,208,83,141,23,8,166,58,232,208,72,32
241	180 data 228,8,138,32,113,168,76,174,167,169,1,133,43,141,24,8,169,8,133,44,141
140	190 data 25,8,96,166,58,232,208,3,142,49,8,165,46,197,56,176,9,201,8,144,5,173
227	200 data 2,8,208,20,169,18,141,1,8,169,8,141,2,8,173,50,8,133,45,173,51,8,133
245	210 data 46,96,76,174,179,76,8,175,201,164,208,6,169,137,56,76,231,167,141,78
175	220 data 8,201,78,240,98,201,91,176,229,201,88,240,90,176,106,166,58,201,72
70	230 data 240,62,76,31,9,165,62,240,35,173,48,8,240,35,133,62,173,47,8,133,61
178	240 data 173,80,8,133,59,173,81,8,133,60,173,46,8,141,23,8,32,173,9,174,79,8
111	250 data 154,169,0,141,48,8,24,173,23,8,105,48,32,210,255,56,169,154,76,231,167
85	260 data 232,208,155,141,49,8,142,48,8,32,115,0,208,144,32,142,166,76,174,167
149	270 data 32,166,179,174,23,8,208,10,166,45,142,50,8,166,46,142,51,8,76,68,10
247	280 data 10,170,189,25,8,240,13,133,44,189,24,8,133,43,96,162,26,76,55,164,76
83	290 data 69,178,174,50,8,228,45,208,241,174,51,8,228,46,208,234,96,32,196,9
57	300 data 172,23,8,56,233,48,141,23,8,32,173,9,166,58,224,255,144,34,174,48,8

√Σ	GOFACREATE (cont.)
194	310 data 208,40,166,62,142,48,8,166,61,142,47,8,166,60,142,81,8,166,59,142,80,8
80	320 data 140,46,8,186,142,79,8,176,11,142,22,8,166,57,142,21,8,140,20,8,166,58
124	330 data 32,115,0,208,9,232,208,31,32,142,166,76,134,227,201,83,208,8,32,139
158	340 data 11,169,141,76,231,167,201,84,208,6,32,139,11,76,41,9,76,174,179,76,8
11	350 data 175,76,53,164,32,115,0,8,32,107,169,32,51,165,165,34,101,20,133,34,165
152	360 data 35,101,21,133,35,56,165,55,229,34,170,165,56,229,35,144,219,168,138
4	370 data 233,50,152,233,0,144,210,160,1,174,78,8,224,78,208,5,40,144,195,176,5
6	380 data 40,224,88,208,4,169,0,145,34,152,101,34,133,34,144,2,230,35,224,89
0	390 data 208,14,165,34,133,20,165,35,133,21,32,48,225,76,174,167,224,90,208,13
96	400 data 165,34,141,52,8,165,35,141,53,8,76,174,167,238,23,8,162,250,154,142,79
248	410 data 8,173,23,8,10,170,142,78,8,165,34,133,43,157,24,8,165,35,133,44,157
39	420 data 25,8,169,0,174,78,8,232,224,24,176,5,157,25,8,144,246,32,38,11,208,8
216	430 data 160,1,177,43,240,82,208,37,176,35,174,78,8,224,20,176,25,32,51,165,32
213	440 data 142,166,173,49,8,240,11,32,38,11,208,3,141,49,8,24,144,62,76,174,167
34	450 data 32,244,172,169,0,141,49,8,32,68,166,165,45,141,50,8,165,46,141,51,8
153	460 data 208,36,24,165,34,105,2,170,165,35,105,0,168,56,138,229,45,133,34,152
80	470 data 229,46,5,34,96,141,49,8,133,62,160,106,32,47,241,76,134,227,32,142,166
144	480 data 166,122,134,61,133,62,208,242,76,8,175,208,251,169,255,133,74,32,138
119	490 data 163,154,201,141,240,5,162,12,76,55,164,104,104,133,57,104,133,58,104
245	500 data 133,122,104,133,123,165,58,201,250,208,10,165,57,141,23,8,32,173,9,169
133	510 data 0,76,248,168,132,57,169,250,133,58,172,78,8,240,4,136,32,251,168,96
17	520 data 32,115,0,32,158,183,160,0,140,78,8,201,141,240,38,201,137,240,34,238
90	530 data 78,8,201,203,208,160,32,115,0,176,155,200,177,122,201,83,240,4,201,84
5	540 data 208,144,174,78,8,208,6,32,121,0,76,211,9,72,198,101,208,22,174,78,8
244	550 data 240,6,140,78,8,104,208,234,32,251,168,174,78,8,104,56,76,231,167,200
107	560 data 177,122,201,48,144,6,201,58,144,245,176,8,201,44,240,213,201,32,240
104	570 data 235,32,251,168,104,76,174,167,32,115,0,208,4,160,0,240,3,32,139,176
103	580 data 133,73,132,74,32,138,163,240,5,162,10,76,55,164,154,189,18,1,188,17,1
55	590 data 133,20,132,21,56,229,43,165,21,229,44,144,25,173,23,8,105,0,10,170,189
208	600 data 24,8,229,20,189,25,8,208,4,186,76,54,173,229,21,176,248,165,21,201,2
135	610 data 240,242,208,198

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

CMD • HARDWARE • ORDERS: 1-800-638-3263 • SOFTWARE • CMD

FD Series 3.5" Floppy Disk Drives

FD-2000 (800K and 1.6 MB)	$179.00
FD Real-Time-Clock Option	$39.00
Box of 10, High Density Disks (1.6MB)	$14.95
Box of 10, Enhanced Density Disks (3.2 MB)	$29.00

Miscellaneous Hardware

Monitors (40 column and 40/80 column)	CALL
Aprotek 3-Way User Port Expander	$30.00
Aprotek User Port Extension Cable	$19.00
C-64 Computer (Remanufactured, w/JD & PS)	$99.00
C-64C Computer (Remanufactured, w/JD & PS)	$109.00
C-64C Computer (New)	$139.00
SX-64 Computer (Remanufactured w/JD)	$299.00
C-128 Computers	CALL
C128-D Computers (Remanufactured w/JD)	CALL
C-64/64C PowerSupply (New, 1.7 Amp.)	$29.00
C-64/64C RepairablePS (New, 1.7 Amp.)	$39.00
C-64/64C Heavy Duty Repairable PS (New, 4.3A)	$59.00
C-128 RepairablePower Supply (New, 4.3 Amp.)	$55.00
C-128D Internal Power Supply (New, 4.5 Amp.)	$39.00
1541-II/1581/RLv1 Power Supply (New, 1 Amp.)	$25.00
CBM 1541C Disk Drive (New w/JD)	$119.00
CBM 1541-II Disk Drive (New w/JD)	$129.00
CBM 1571 Disk Drive (Remanufactured w/JD)	CALL
CMD EX2+1 3-Port Cartridge Port Expander	$39.00
CMD EX3 3-Port Cartridge Port Expander	$34.00
CMD GeoCable II Print Cable 6ft./15ft.	$29.00/$34.00
CMD Sega-style Gamepad for C-64/128	$24.95
CMD SmartMouse (1351 Compatible Mouse)	$49.95
Flip'n File 25 Disk Holder (5.25-inch.)	$5.95
Floppy Disks (25 pack of DSDD 5.25-inch.)	$10.00
Inkwell Light Pen Model 170C	$75.00
Monitor Cables	CALL
Panasonic KXP-1150 9-pin Printer	$199.00
Panasonic KXP-2023 24-pin Printer	$259.00
Panasonic KXP-2130 24-pin Printer	$299.00
Panasonic KXP-2023 Color Kit	$65.00
Smartline C-600 Printer Interface	$10.00

Utilities

Big Blue Reader V4.10 (SOGWAP)	$39.00
CMD Utilities	$24.95
JiffyMON-64 (ML Monitor)	$19.95

Languages & Compilers

BASIC 64 Compiler (Abacus)	$17.00
BASIC 128 Compiler (Abacus)	$25.00
Blitz! 64 Compiler (Skyles)	$30.00
Buddy 64/128 Assembler	$39.00
Cobol 64 (Abacus)	$17.00
Pascal 64 (Abacus)	$17.00
Power C (Spinnaker)	$19.00

GEOS

Collette Utilities (Handy Geos Utilities)	$19.95
Desk Pack Plus	$29.00
Dweezils Greatest Hits (NewTools2,Stamp,Label128)	$30.00
FONTPACK Plus	$25.00
gateWay 64 or 128 (Specify Version)	$29.95
geoBASIC	$20.00
geoCalc 64/128	$40.00/$45.00
geoChart	$29.00
geoFAX	$39.95
geoFile 64/128	$40.00/$45.00
geoMakeBoot (Makes Bootable copies)	$12.95
geoProgrammer	$45.00
geoPublish	$40.00
GEOS 64 v2.0	$44.00
GEOS 128 v2.0	$49.00
geoSHELL V2.2 (CLI for GEOS)	$24.95
International FONTPACK	$25.00
Perfect Print LQ for GEOS (Laser-like output)	$49.95
RUN GEOS Companion	$20.00
RUN GEOS Power Pak I or II (Specify)	$20.00

Books

Anatomy of the 1541	$8.00
C-64 Science & Engineering	$8.00
C128 Computer Aided Design	$8.00
C128 BASIC Training Guide	$8.00
Commodore 64 Tricks and Tips	$8.00
Compiler Design & Implementation for the C64	$8.00
GEOS Programmers Reference Guide	$28.00
Graphics Book for the C-64	$8.00
Hitchhikers Guide to GEOS	$28.00
Ideas for Use on Your C-64	$8.00
Printer Book for the C64	$8.00
Mapping the C64	$8.00

MIDI & Sound

Digimaster	$34.95
SID Symphony Stereo Cartridge	$44.95
Dr.T's Caged Artist or AlgorythmicComposer	$15.00

Educational

Adventures w/ Fractions (ages 10-14)	$15.00
Expeditions (ages 8-15)	$15.00
Pre-Reading (ages 3-7)	$15.00
Spelling Bee (ages 8-13)	$15.00
The Glass Computer (ages 12+)	$15.00
The Market Place (ages 8-14)	$15.00
Where in Europe is Carmen SanDiego?	$29.00
Where in the World is Carmen SanDiego?	$29.00

Accelerators

SuperCPU 64	$199.00
SuperCPU 64 w/SuperRAM	$259/274/294/319/358
SuperCPU 128	$259.00
SuperCPU 128 w/SuperRAM	$319/334/354/378/418
SuperRAM Card (0/1/4/8/16MB)	$79/94/114/139/179

HD Series SCSI Hard Disk Drives

HD-40 (40 MB)	$269.00
HD-170, 170 MB (Special Edition)	$319.00
HD-500, 500+ MB (Special Edition)	$439.00
HD-1000, 1 GB (Special Edition)	$539.00
HD-2000, 2 GB (Special Edition)	$649.00

RAM Devices

CMD 1750 512K REU	$99.00
CMD 1750XL 2MB REU	$119.00
RAMLink Base Model (OMB, No RAMCard)	$149.00
RAMLink w/1MB RAMCard (Special!)	$189.00
RAMLink w/4MB RAMCard (Special!)	$229.00
RAMLink w/16MB RAMCard (Special!)	$349.00
RAMCard RTC Option/After Market Kit	$10.00/$19.00
RAMLink Battery Back-up (Optional)	$24.95
Parallel Cable (RAMLink to HD)	$19.95

Productivity

Bank Street Writer	$12.00
Cadpak 64 (Abacus)	$22.00
Cadpak 128 (Abacus)	$25.00
Chartpak 64 (Abacus)	$17.00
Chartpak 128 (Abacus)	$25.00
Data Manager 64 (Timeworks)	$16.00
GoDot	$34.95
I Paint v1.5 (128, 80-col., 64K VDC)	$39.00
I Port v1.54 (128, 80-col., 64K VDC))	$29.00
Personal Portfolio Manager (Abacus)	$16.00
Pocket Writer 1 (64) Digital Sol.)	$35.00
Pocket Writer 2 (64/128) (Digital Sol.)	$65.00
Pocket Writer 3 (64 or 128) (Digital Sol.)	$70.00
Pocket Planner 2 or Pocket Filer 2 (Digital Sol.)	$35.00
RUN Productivity Pak I, II, or III (Specify)	$15.00
RUN Super Starter Pak 1541 or 1581	$20.00
RUN Works	$20.00
SEC Check Register 128	$50.00
SuperScript 128 (Precision)	$20.00
Superbase 64 Version 3.01 (Precision)	$35.00
Superbase 128 Version 3.01 (Precision)	$35.00
SwiftCalc 64 (Timeworks)	$16.00
TWS 64 w/Speller (Busy Bee)	$29.00
TWS 128 w/Speller (Busy Bee)	$39.00
TWS Modules (HD/RL/Illustrator)	each $5.00

Telecommunications

Aprotek Com-Modem Adapter (for ext. modem)	$19.00
Aprotek Com-Modem Adapter Cable	$9.95
Commodore 1670 Modem (1200 baud)	$19.95
Modem (9-25) or Null-Modem Cable (9-9 or 9-25)	$9.95
Novaterm 9.6 (specify 3.5" or 5.25")	$29.95
Turbo232 Cartridge (Up to 115K baud)	$39.95
USR Sportster 33.6Kbps FaxModem	$169.00
USR Sportster Faxmodem w/Turbo232 & Cable	$199.00

Scanning & Video

Handyscanner	$249.00
Pagefox	$139.00
Video Digitizer	$189.00
Videofox	$89.00

Games

Atomino	$17.00
Ballistix	$13.00
Chomp!	$10.00
Cut Throats!	**$10.00**
Day in the Life of Prehistoric Man	$19.00
Escape Route	$19.00
Felony	$10.00
Frogger	**$10.00**
Grand Prix Circuit	**$10.00**
Guerilla	**$10.00**
Hardball	$10.00
Heavenbound	$19.95
Island of the Dragon	$19.00
Jordan vs. Bird: One on One	$10.00
Kings of the Beach	**$10.00**
Lions of the Universe	$19.95
Lords of Conquest	**$10.00**
Mainframe	$13.00
Mean Streets	**$10.00**
Menace	$15.00
Monday Night Football	$10.00
Rings of Medusa	$16.00
RUN C64 Gamepak or C128 Funpak (Specify)	$10.00
Skate or Die	$13.00
The President Is Missing!	$10.00
The Three Stooges	$10.00
Tie Break Tennis	$16.00
Total Eclipse	$10.00
Walkerz	$19.00
War in Middle Earth	**$10.00**
Wings of Circe	$19.00

THE HOT NEW UPGRADE FOR GEOS 64 IS NOW SHIPPING

If you've been waiting for GEOS to get better, faster and more efficient, your wait is over! Click Here Software's *Wheels* takes GEOS to the next level, with full integrated support for all the latest hardware. *Wheels* also adds many features not previously available in GEOS, as well as some that could only be had by buying or adding other utilities and patches. GEOS is really going someplace, and it has the *Wheels* to get there!

now shipping! **$36.00**

Minimum requirements for Wheels: GEOS 64 v2.0, 1541 or 1571 disk drive, mouse or joystick, and 128K or larger RAM expander.

Novaterm *version 9.6*

Join the Telecommunications Revolution... get on the Information Super Highway TODAY!

- **Easy-to-use – novice user configuration**
- Now supports **UUencode and UUdecode** and converts files on disk or in a buffer. Also ASCII <> PETSCII and PETSCII to Unix.
- Protocol support: **Zmodem up/download, resume (crash recovery), streaming to buffer**; Ymodem batch; **Ymodem-g**; Xmodem-1k; **Xmodem-1k-g**(to buffer); Xmodem-CRC; Punter; Kermit; WXmodem.
- Supports High Speed Interfaces like Turbo232 for speeds up to 230Kbps.
- Supports ANSI color/graphics, VT102, and VT52 in 80 col. Plus Commodore color graphics and ANSI color. **All emulation modules now load from one window.**

Now Just $29.95 *(Specify 5.25" or 3.5" disk)*

- New faster 80 column modes: **Soft-80 on C-64 (enhanced scrolling w/ REU); and 25- or 28-line C-128 VDC 80-col. mode.**
- **Use any memory device as a buffer** including: 17xx REU, RAMLink partition, GeoRAM, C128 VDC, BBGRAM, and internal C64 memory.
- New text capture features:Capture text on-line and store in any device; High-speed transfers directly into memory and now **retain buffer contents with battery/power backed RAM devices such as RAMLink.**
- Enhanced full featured **Text editor can now load/save files from the buffer** and has an integrated script compiler.
- Script language for automatic operations
- Simple BBS mode - dial-in downloading
- Supports **real-time clocks in CMD devices**
- **All new user's manual**

JiffyDOS

Increase Speed Up to 1500% while retaining 100% compatibility

64 System Computer & Drive ROM $39.00

Add'l Drive ROMs $19.00

128 system Computer & Drive ROM $49.00

Note: Computer Serial Number Required for C-64/64C Orders

Shipping and Handling Charges

	Continental United States			AK,HI,PR	Canada	Foreign
Order Subtotal	UPS Ground	2nd Day	Next Day	UPS 2nd Day Air	Air Parcel Post	AirMail or UPS
$0.01 to $19.99	$4.75	CALL	CALL	$16.00*	$5.00	CALL
$20.00 to $29.99	$5.75	CALL	CALL	$17.50*	$7.00	CALL
$30.00 to $59.99	$6.75	CALL	CALL	$21.00*	$9.00	CALL
$60.00 to $149.99	$7.75	CALL	CALL	$29.00*	$12.00	CALL
$150.00 to $299.99	$11.00	CALL	CALL	$38.00*	$20.00	CALL
$300.00 to $799.99	$16.00	CALL	CALL	$42.00*	$25.00	CALL
$800.00 and up	$21.00	CALL	CALL	$55.00*	$38.50	CALL

UPS C.O.D. add $5.00 (US only)

* Other shipping methods available. Call for details.

POLICIES: CMD accepts: Major Credit Cards, Money Orders, COD and Personal Checks. Personal Checks are held 3 weeks. Customer is responsible for shipping charges on refused packages. Most items are stock, contact CMD for firm delivery. Returns for merchandise credit only within 30 days with prior authorization. Credits are less shipping, handling, taxes, customs, duties, and a 10% restocking charge. No refunds or credits on opened software. All prices and specifications are subject to change without notice. CMD Business Hours: (Orders) M-F, 9AM-5:30PM EST (Tech Support) M-F, 1PM-5:30 PM EST.

••• All Major Credit Cards Accepted •••

Mastercard • Visa • Discover • American Express

Creative Micro Designs, Inc.
P.O. Box 646
East Longmeadow, MA 01028
Info: (413) 525-0023
Fax: (413) 525-0147
Visit our Web Site at: http://www.cmdweb.com/

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

HOT SUMMER SAVINGS!

C-64 COMPUTERS, KEYBOARDS & CASES

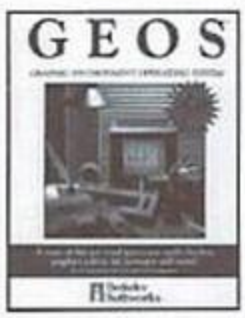
C-64 in Slimline Case (no Power Supply)	*$49.00*
C-64 in Slimline Case (with Power Supply)	*$69.00*
C-64 Keyboards (reconditioned)	*$29.95*
C-64 Slimline Case	*$10.00*

All SuperCPU Models Now Shipping from Stock at the Lowest Prices Ever!

SUPERCPU ACCELERATORS

SuperCPU 64	$199.00	SuperCPU 128	$259.00
SuperCPU 64 w/0 MB SupeRAM	$239.00	SuperCPU 128 w/0 MB SuperRAM	$299.00
SuperCPU 64 w/1 MB SuperRAM	$259.00	SuperCPU 128 w/1 MB SuperRAM	$319.00
SuperCPU 64 w/4 MB SuperRAM	$274.00	SuperCPU 128 w/4 MB SuperRAM	$334.00
SuperCPU 64 w/8 MB SuperRAM	$298.00	SuperCPU 128 w/8 MB SuperRAM	$358.00
SuperCPU 64 w/16 MB SuperRAM	$338.00	SuperCPU 128 w/16 MB SuperRAM	$398.00

HOT DEALS ON GEOS & WHEELS!



Wheels 64 - Just Released!	$36.00
GEOS 64 v2.0	$34.00
GEOS 128 v2.0	$39.00
GEOS 64 v2.0 & Wheels 64 Bundle	$65.00

GEOS APPLICATIONS ON SALE!

Desk Pack Plus	$19.00	geoPublish	$30.00
GEOBASIC	$10.00	geoProgrammer	$40.00
geoCalc 64	$30.00	GEOS Companion	$10.00
geoCalc 128	$35.00	GEOS Power Pak	$10.00
geoChart	$19.00	GEOS Power Pak II	$10.00
geoFile 64	$30.00	Font Pack Plus	$15.00
geoFile 128	$35.00	Int'l Font Pack	$15.00

GEOS BONUS SPECIALS

Purchase any GEOS product or Wheels and Get geoMakeBoot for only $7.95*
Get a CMD 1750XL REU for only $89.00*
Get a 4 MB RAMLink for only $199.00*
Get a 16 MB RAMLink for only $299.00*

**Price is in addition to price of qualifying product.*

POWER SUPPLIES

C-64/64C (NEW STOCK 9VAC1A/5VDC 1.7A)	$29.00
C-64/64C (NEW 9VAC1A/5VDC 1.7A REPAIRABLE)	$39.00
C-64/64C HEAVY DUTY (NEW 9VAC 1A/5VDC 4.3A REPAIRABLE)	$59.00
C-128 (NEW 9VAC 1A/5VDC 4.3A REPAIRABLE)	$55.00
1541-II/1581 (NEW STOCK CBM)	$25.00
1571 (USED BUT THOROUGHLY TESTED)	$20.00
1541 (USED BUT THOROUGHLY TESTED)	$20.00

CMD Service Center

Reasonable Rates • Quality Work
Computer & Drive Repairs • Reset Switches
Keyboard Cleaning • Device Select Switches

CALL FOR AUTHORIZATION BEFORE SENDING ANY ITEM

You may now reach CMD on the Internet at:
HTTP://WWW.CMDWEB.COM/
TECHNICAL SUPPORT: SUPPORT@CMDWEB.COM • SALES: SALES@CMDWEB.COM

Prices do not include shipping charges, and are subject to change without notice. All items subject to availability, call before ordering. See our main ad for shipping prices.

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

WAREHOUSE CLEARANCE SALE

1-800-638-3263

CMD's Warehouse Sale includes many hard-to-find used and (where noted) new items. In most cases we have only one or two of each item in stock, so be sure to place your order before your selection has been taken! A minimum order of $20.00 applies to all Warehouse Sale orders. Shipping charges are not included in the prices shown. (*See our main advertisement elsewhere in this issue for shipping information*).

TELEPHONE ORDERS ONLY ON THESE ITEMS

Mailed in orders for non-reserved out-of-stock items will result in a merchandise credit. No cash refunds. All items listed here are sold "as-is", and all sales are final. Prices and specifications subject to change without notice. Not responsible for typographical errors.

BOOKS

128 Machine Language for Beginners w/Disk	15.00
1571 Internals	15.00
1581 DOS Refernce Guide	10.00
40 More Great Flight Simulator Adventures	10.00
Algorithms For Personal Computing	10.00
All About the Commodore 64 Volume 1	10.00
All About The Commodore 64 Volume 2	10.00
Anatomy Of The 1541	8.00
Assembly Language for Kids C64 w/128 Update	10.00
Assembly Language For Kids- Commodore 64	10.00
Big Computer Games	10.00
C128 Computer Aided Design (new)	8.00
C64 Programmer's Reference Guide	25.00
C=128 Internals-The Authoritative Insiders Guide	15.00
C=64/128 Graphics and Sound Programming 2nd Ed.	10.00
Cassette Book For The C=64 And VIC-20	12.00
Commodore 128 Programming Secrets	10.00
Commodore 64 Assembly Language	10.00
Commodore 64 Data Files - A Basic Tutorial	8.00
Commodore 64 Favorite Programs Explained	10.00
Commodore 64 Graphics with COMAL	10.00
Commodore 64 Trouble Shooting & Repair Guide	10.00
Compute's Beginners Guide to Commodore 64 Sound	10.00
Compute's Commodore 64 Graphics	10.00
Compute's First Book of C=64 Sound And Graphics	10.00
Compute's First Book Of Commodore 128	10.00
Compute's Machine Language For Beginners	10.00
Compute's Machine Language Routines For the C=64	10.00
Compute's Third Book of Commodore 64	10.00
Computer Programming In The Basic Language	10.00
Digital Research CP/M Plus	25.00
Flight Simulator Co-Pilot	10.00
Flying On Instruments With Flight Simulator	10.00
Guide to Care, Feeding and Training of C-64	6.00
How To Use The Commodore 64	6.00
How To Use The Commodore 64 Computer	10.00
I Speak Basic To My Commodore 64	10.00
Learning With LOGO	10.00
Machine Language for the Absolute Beginner	10.00
Machine Language For The C=64 and other C= Comp.	10.00
Osborne 1 User's Reference Guide	15.00
Programming The Commodore 64-The Definitive Guide	10.00
Sprite Graphics For The Commodore 64	10.00
The C=64 Guide to Data Files and Advanced Basic	10.00
The Elementary Commodore 128-Program in Basic7.0	10.00
The Elementary Commodore 64	10.00
The Master Memory Map for the Commodore 64	10.00
The Official Book Of King's Quest-Daventry and Beyond	10.00
Your Commodore 128	10.00
Your Commodore 64-A Guide to the Commodore 64	10.00

BUSINESS

Better Working File & Report (new)	15.00
Business System- Sales Analysis Management	10.00
Datamanager 2 (new)	15.00
Easy Finance 1	5.00
Easy Finance I	5.00
Easy Finance II	5.00
Easy Finance III	5.00
Easy Finance IV	5.00
Easy Finance V	5.00
Filer's Choice-Filing and Record Keeping System	8.00
JANE 128	15.00
Label Wizard	5.00
Load'n'Go Home Management Series	25.00
Paperback Filer 64	10.00
Paperback Planner 64	10.00
Planner's Choice -Personal Planning System	8.00
RUN Productivity Pak II	8.00
Securities Analyst 128?Super Disk Library	8.00
Silent Butler (Check Writing system)	15.00
Silent Butler (new)	25.00
Superbase 128	15.00
Swiftcalc 64	10.00
Swiftsheet 128	10.00
SwiftTax 65	8.00
The Consultant (Database Management)	15.00
The Electronic Checkbook	15.00
The ELF System (new)	20.00
The Home Accountant	15.00
The Home Banker	10.00
The Home Manager	10.00
The Manager	10.00
The Negotiation (new)	15.00
The Sales Edge (new)	15.00
The Word Machine/Name Machine (new)	5.00
Valuecalc	8.00

CARTRIDGES

Alf in The Color Caves	10.00
Alpha Build	10.00
Big Bird's Special Delivery	10.00
Bubble Burst	10.00
Calc Result - Advanced for C=64/128 in 80 Column	10.00
COMAL 80	25.00
Compute's Music Sys.Enhanced Sid Player & Sid Cart.	50.00
Easycalc	8.00
Explode V3.0	8.00
Facemaker	10.00
Freeze Frame -Transparent Screen Dump	10.00
Frogger VIC 20 Version	10.00
Heskit	10.00
Hop Along Counting	10.00
Kids on Keys	10.00
Kindercomp	10.00
Linking Logic	10.00
Mastertype (new)	10.00
Pac Man	10.00
Partner 128	25.00
Sea Speller	10.00
Super Explode V5.0	10.00
Super Snapshot V4 w/manual	25.00
Turtle Graphics II (LOGO-type language)	8.00
Up & Add 'em	10.00
Warp Speed	15.00

CARTRIDGES (No Docs)

Attack Of The Killer Camels	8.00
B C's Quest For Tires	8.00
Centipede	8.00
Clowns	8.00
Cosmic Life	8.00
Ducks Ahoy	8.00
Frogger	8.00
Frogger II	8.00
Hop Along Counting	8.00
International Soccer	8.00
Kindercomp	8.00
Linking Logic	8.00
Magic Desk I	8.00
Memory Manor	8.00
Number Tumblers	8.00

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

Pac Man	8.00
Popeye	8.00
Q-bert	8.00
Sales Cartridge	8.00
Sea Speller	8.00
Star Post	8.00
Story Machine	8.00
Super Zaxxon	8.00
Up & Add 'em	8.00
Viduzzles	8.00
Warp Speed	8.00

DESIGN

Awardware	8.00
Certficate Maker (new)	15.00
Certificate Library for Certif. Maker Vol 1	10.00
Colorez 128 -40 to 80 Column Graphics Utility	8.00
Doodle	8.00
Graphics Integrator	10.00
Graphics Integrator 2	10.00
IPAINT V1.3	12.00
Newsmaker 128	10.00
Printmaster Plus 64/128	15.00
The Graphics Galleria	8.00
The Newsroom	10.00
The Newsroom (new)	15.00

DISK UTILITY

1541/1571 Drive Alignment	10.00
Big Blue Reader V2.02	10.00
FASTRAC/128	10.00
Kracker Jax - The C128 Cannon	10.00
Kracker Jax - The Maverick V3	10.00
Super 81 Utilities	10.00
SuperCat-Disk Catalog System	8.00
The Maverick V5	20.00

EDUCATIONAL/CHILDREN

Alphabet Zoo	10.00
Chase On Tom Sawyer Island	10.00
Color Me-The Computer Coloring Kit	10.00
Computer Science	5.00
Counting Parage	10.00
Donald's Alphabet Chase	10.00
Early Learning Friends	10.00
Early Numbers	10.00
Ernie's Magic Shapes	10.00
Ernies Big Splash	10.00
Fun House	10.00
Grovers Animal Shapes	10.00
Hey Diddle Diddle	10.00
Kids On Keys	10.00
Magic Spells-Spelling Skills	10.00
MECC Expeditions	8.00
MECC Odell Lake	8.00
Peter Rabbit Reading	10.00
Print Kit	10.00
Reader Rabbit	10.00
Snoopy Writer	10.00
Snoopy's Skywriter Scrambler	10.00
Sticky Bear Basket Bounce	10.00
Sticky Bear Math	10.00
Sticky Bear Reading	10.00
Sum Ducks	10.00
The Electric Company Roll a Word	10.00
Where in the Europe is Carmen San Diego (new)	20.00
Where in the World is Carmen San Diego (new)	25.00

GAMES

Alter Ego	6.00
Amnesia	6.00
Archon	10.00
Ardok-The Barbarian	6.00
Batman-The Caped Crusader	10.00
Beach-Head	6.00
Beach-Head II	6.00
Borrowed Time	6.00
Bubble Ghost	6.00
Bureaucracy	10.00
Cauldron	6.00
Championship Golf (new)	6.00
Chomp (new)	4.00
Chuck Yeagers Advanced Flight Trainer	10.00
Countdown To Shutdown	6.00
Cutthroats (new)	10.00
Dig Dug	6.00
Feud	6.00
Fist - The Legend Continues	6.00
Flight Simulator II (w/Flight Physics book)	15.00
Flight Simulator Scenery Disk #7 (new)	10.00
Flight Simulator Scenery Disk Set Disks 1-6 (new)	50.00
Gauntlet	6.00
Grand Prix Circuit	10.00
Guerilla (new)	6.00
Gulf Strike	6.00
Hardball (new)	6.00
Heart of Africa	6.00
Heartland (new)	6.00
High Roller	6.00
Jeopardy Jr. Edition	8.00
Jordan vs Bird	10.00
Karate Chop (new)	6.00
Kings of the Beach (new)	6.00
Kung Fu II-Sticks of Death (new)	6.00
Mean Streets	10.00
Mini Putt	6.00
Minit Man	6.00
Modem Wars	6.00
Murder by the Dozen	8.00
Navy Seal	6.00
Navy Seal (new)	8.00
Operation Whirlwind	6.00
Pathwords	6.00
Perry Mason-Mandarin Murder	6.00
Predator	6.00
Presidential Campaign	6.00
Pro Boxing	6.00
Q-Bopper	6.00
Qix (new)	6.00
Racing Destruction Set	6.00
Raid Over Moscow	6.00
Realm of Impossibility (new)	10.00
Renegade	6.00
Rings of Medusa (new)	8.00
Road to Moscow	6.00
Rocket Ranger	8.00
Santa Paravin	6.00
Sanxion	6.00
Serve and Volley (new)	6.00
Sky Fox	6.00
Snow Strike	6.00
Stationfall	6.00
Summer Games	6.00
The American Challange-A Sailing Simulation (new)	10.00
The President is Missing (new)	5.00
Thud Ridge (new)	6.00
Total Eclipse (new)	5.00
Tracker	6.00
Trinity	10.00
Ultima III: Exodus	25.00
Ultimate Wizard	6.00
Up Periscope	6.00
Word Flyer	6.00
World Class Leaderboard	6.00
Zenji	6.00
Zork I	6.00
Zork II	10.00

GEOS

Geowrite Workshop 128	8.00

HARDWARE

1351 Mouse Complete	35.00
1351 Mouse Complete	25.00
1351 Mouse Complete with Box	39.00
1764 RAM Expansion Unit w/manual and disk	40.00
6 Slot Cartridge Port Expander for VIC 20	10.00
Aprospand-64	20.00
Assorted Joysticks	5.00
Commodore 1750 RAM Expansion Unit W/Manual	50.00
Computer Eyes- Video Acquisition System	50.00
G-WIZ Printer Interface	49.00
GeoRam 512 w/GeoRam 2.0r	60.00
HandyScanner W/new manual, disks and ps	175.00
Icontroller	15.00
KEYDOS Function ROM for C128 V2	5.00
Koala Pad w/manual	25.00
Light Pen -no documentation	5.00
Magic Voice Speech Module	50.00
Micro Stuffer Printer Buffer	25.00
MicroWorld MW-302C Printer Interface	30.00
Paint-N-Sketch I w/Lightpen	15.00
Panasonic CCTV Camera	15.00
PPI BBU w/Battery Pak ,P/S, Disk & Manual	20.00
R.I.S.T Inc ComTalker 64-Text to Speech Synthesizer	25.00
Smart One 2400X Modem w/Swiftlink & Cable	50.00
The Connection - Parallel Printer Interface	20.00
Used SlimLine cases for Commodore 64	10.00
VIC-1011A RS232C Terminal Type Interface Cart.	10.00

MAGAZINES

Ahoy - Jan-Dec87, Jan-Dec88 (No May), Jan89	25.00
Compute -12 Issues Nov-Dec92, Jan-Oct93	15.00
Computes Gazette Disks Feb-Dec 93	10.00
Transactor Apr89, Jun89, Aug89	5.00
Twin Cities 128 Issues 20-34	15.00

MISCELLANEOUS SOFTWARE

Aerobics	6.00
Bobsterm Pro (new)	10.00
Computer Diet-The Scarborough System (new)	6.00
CP/M Kit For The Commodore 128	5.00
Postcards	10.00
RAMDOS Lightning Fast RAM-Disk	5.00
Songsmith for C64/128	5.00
Songwriter	5.00
Term Paper Writer (new)	10.00
Toyshop (new)	25.00
Warewithall (Mixed Party Paper Pak) (new)	15.00
Writer/File Pak 1541	8.00

PROGRAMMING

Basic 64 Compiler	10.00
Basic 8	15.00
Basic 8 Toolkit	5.00
Basic Compiler 128	15.00
Complete Course In Basic Programming	20.00
GEOBASIC (new)	10.00
Hesware - Graphics Basic	10.00
Simon's Basic	10.00
SYSRES Program Manipulation System	10.00

WORD PROCESSING

Easy Mail (new)	8.00
Fleet System For C128	15.00
Font Master 128	15.00
Ghost Writer 128	10.00
Homeword (new)	6.00
Master Word	8.00
Mastertypes Writer	8.00
Paperback Writer 64/128	10.00
PaperClip 64	15.00
Pocket Writer 2	10.00
Superscript 128	10.00
Supertext Word Processor	10.00
The Printed Word	8.00
The Write Stuff	12.00
WordPro 3 Plus/64 (new)	15.00
Wordwriter 128	20.00
Writers Choice Word Processing	8.00

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

SOFTWARE IN REVIEW

CENTIPEDE BBS

Centipede 128 BBS; $69.95 +s/h; Adam Fanello/Bugsoft, 4822 Larwin Ave., Cypress, CA 90630-3515; Nature Reserve BBS 714-828-7296; adamf@acm.org; http://www.bugsoftware.com.

Some Commodore BBS packages are legendary. Color64, C-Net, and Image have been established over the years as dominating forces in the Commodore BBS community. In looking over these systems, it's always been clear that they have a long history (ten years!) of author and sysop-created add-ons and modifications (known "mods" in BBS lingo). Centipede by Adam Fanello is a new BBS package for the C128 that although new, has a rich history. In development since 1992, it started as "V128", an upgrade to Colour64 v7.3x for the C128. Unlike V128, however, Centipede is a completely new BBS package that incorporates similar features as Color64, with updated and modernised amenities without 10 years of updates to contend with.

Centipede comes with a 71 page manual in a pocket-folder, convenient for holding the BBS disk(s) and updated printouts of text files. A BBS program can be one of the most complicated things you can set-up on a computer, regardless of platform, and I consider the documentation for a BBS program to be as important as the software itself. Without good documentation, a new Sysop can easily become lost or discouraged and it's no fun wading through 1000's of text files to find information about how to set some things up. Instead of jumping directly into the software, Centipede's manual begins with a brief history of the of BBS package and a glossary for terms and phrases that may be unfamiliar.

The manual features one of the most important aspects of any BBS: the planning and designing stage. This is essential (not only to running a BBS, but to organising a BBS software manual) because without careful consideration the first time around, a sysop can spend a great deal of time RE-organising the BBS to suit his or her needs AFTER installing the BBS software. By covering the planning stage of setting up a BBS, Centipede's manual guides the new Sysop and helps avoid headaches down the track.

Another aspect covered in-depth in the manual is the type of "Storage Units" (disk drives, hard drives, RAM devices, etc) that will be used to run the BBS. Some BBS packages require the Sysop to set up their BBS storage devices in a particular manner, even to the point that directories must be in certain locations on a hard drive, or have a specific naming convention. Centipede takes a broader approach and allows the Sysop to decide these things, and given enough storage space, all BBS files can be in the same location. One of Centipede's key features is its ability to use nearly any type of Commodore storage unit available including Commodore disk drives (even the 1542 dual drive), CMD storage units (RAMLink, HD hard drive, and FD drives) IEEE units, ICT Data Chief, ICT Mini Chief, the Lt. Kernal hard drives, RAM Expansion Units, and multiplexed systems. Because many of these devices have differing methods of sending DOS commands to access it, the manual covers how to tell the BBS software where to find files on each particular devices. It also covers general information about how much space each unit can hold, and any obvious negative things a Sysop may need to know about.

Naturally, a BBS uses a modem to receive and send data to or from the outside world. In the "modern age" of Commodore telecommunications, it's essential that the BBS be backward-compatible with older modems and that it allow Sysops to use current modems and interfaces as well. It allows modem speeds from 1200 bps up through the range of the Turbo232 cartridge (115,200bps). Centipede works with Commodore-compatible modems such as the Commodore 1670 or Aprotek modems, and other modems using either a User Port or Cartridge Port interface (including the SwiftLink or Turbo232).

As Centipede works with several devices that can use either the User or Cartridge port, the manual also covers additional items that may be required such as a cartridge port adaptor or a C128 Adaptor Board for the Lt. Kernal hard drive.

Setting Up

After reading the manual away from the computer a few days before setting up the software, I had a fairly reasonable idea of the type of BBS I wanted to set up: a single user BBS system so that I could participate in the BBS networks that Centipede connects with and communicate with other Commodore sysops. If you don't have much in the way of Commodore support in your area, setting up a single-person BBS and networking with other systems is a creative way to get support. I allowed myself two days to set up the BBS, and was really pleased that it only took an afternoon to have it up and running with the default Centipede system structure. One of the unique things about Centipede is that it allows Sysops to set up their BBS so that it has the look and feel of any type of BBS you want. Add-ons included with the BBS software allow you to change the structure so the commands and menu structures are similar to a Color64 or Image BBS. You can also customise the BBS to suit your own preferences, and the utilities to do so are well documented.

As my system is only intended for personal use, I didn't need to set up games or file transfer areas, so I didn't concentrate on those aspects of Centipede. I noted, however, that it has several games available and utilities to convert Color64 and V128 games and other add-ons. The documentation discusses several ways the Sysop can approach designing and implementing file transfer areas.

User Features

Having a BBS that's full featured and easy to use from the Sysop point of view is important, but it's just as important that it be easy for the general public to navigate and use. Having never accessed a Centipede BBS, I expected to have problems "navigating" through the BBS as a user since I'm not familiar with it, but this didn't happen. The menus were easy to find, understand and navigate. Features that stood out in this area include the ability to define message areas to read, which is stored in the User's information file. Full screen and line editors, that can be accessed from each other, find and replace while editing, and the ability to upload text files to messages.. For file transfers, you can "tag" or select files using a full screen file selector. Centipede currently accesses with ComLink and Net64 networks, and access to the CommNet network is in Beta testing. Email (private messages) can be sent to individuals on the local BBS as well as to users on any networked BBS systems.

There's very little about Centipede that I didn't like. It's obvious that the author is experienced with Commodore BBS's and he managed to create a system that incorporates the best while avoiding many of the pitfalls of other systems. My only complaints are that it accesses devices 8-15, instead of 8-30, and when the sysop exits the BBS, it doesn't reset the computer. User documentation for the BBS would be a nice addition, but because the default Centipede system is so easy to navigate, it isn't necessary. It's easy to set up and use, and that's what will make this BBS software package legendary.

- Gaelyne R. Gasson

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

MEETING 64/128 USERS THROUGH THE MAIL

NO USER'S GROUP?
USER'S GROUP FADING?

Join our world wide group for answers to your burning questions about C=64/128

COMMODORE MAILINK

Contact; Tom Adams, (President)
4427 39TH ST
BRENTWOOD MD 20722-1022
tomadams@sysnet.net

The Internet for Commodore C64/128 Users
2nd Edition
by Gaelyne R. Gasson
ISBN: 0-646-32207-9

The only C= 64/128 Internet reference guide, this 296 page manual takes you through hardware and software needed, how to get online and what you can do once you're there. It covers Email, World Wide Web, FTP, IRC, Telnet, Newsgroups, Commodore files, archives and much more.

ONLY $29.95 US + $7.00 shipping via Economy Airmail

Visa, Mastercard, Amex and personal checks welcome.

VideoCam Services
90 Hilliers Rd, Reynella 5161, Sth Australia

Phone: +61 8 8322-2716 Email: videocam@videocam.net.au
Fax: +61 8 8387-5810 WWW: http://videocam.net.au

Also available from Loadstar. Item #900920

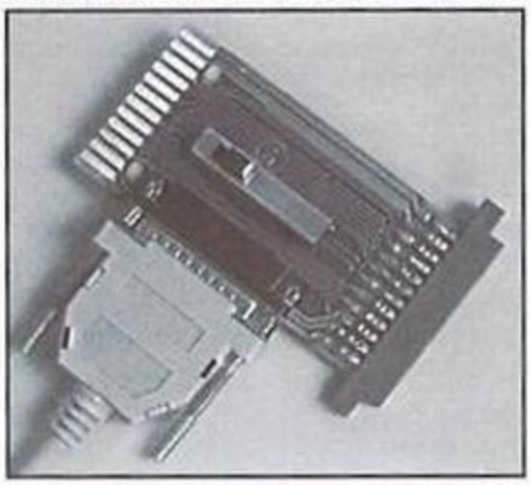
Commodore World Back Issues

CW1	Commodore World Issue 1	CW12	Commodore World Issue 12
CW2	Commodore World Issue 2	CW13	Commodore World Issue 13
CW3	Commodore World Issue 3	CW14	Commodore World Issue 14
CW4	Commodore World Issue 4	CW15	Commodore World Issue 15
CW5	Commodore World Issue 5	CW16	Commodore World Issue 16
CW6	Commodore World Issue 6	CW17	Commodore World Issue 17
CW7	Commodore World Issue 7	CW18	Commodore World Issue 18
CW8	Commodore World Issue 8	CW19	Commodore World Issue 19
CW9	Commodore World Issue 9	CW20	Commodore World Issue 20
CW10	Commodore World Issue 10	CW21	Commodore World Issue 21
CW11	Commodore World Issue 11	CW22	Commodore World Issue 22

Shipping: U.S. and Canada $2.00 for first issue, plus $1.00 per additional issues.; Foreign $5.00 per issue.

TO ORDER CALL 1-800-638-3263

GEOCABLE II
Parallel Print Cable



The Most Advanced Parallel Print Cable Ever!

- **Uses Standard Cable** Equipped with a female DB-25 cable connector to allow use of standard 'PC' printer cables.
- **Switchable Pass-thru** Allows connection of printer and other user port peripherals such as modems without conflicts.
- **Faster Output** Parallel printing offers up to a 40% increase in output speed.
- **GEOS Drivers Included** Includes GEOS drivers plus useful GEOS utilities like MacAttack II, WrongIsWrite, and GEOS CONVERT.

GEOCABLE-II (6 ft.) ONLY $29.00
GEOCABLE-II (15 ft.) ONLY $34.00
Shipping: US $5.00, Canada $7.00, Foreign $25.00.

GeoCable II is compatible with GEOS, Perfect Print LQ, Action-Replay MK VI, Superbase, Superscript, Paperclip III, and all software that supports user port parallel printing.

Creative Micro Designs, Inc.
P.O. Box 646
East Longmeadow, MA 01028
Orders: 800-638-3263
Info: 413-525-0023

UPGRADE YOUR COMMODORE!!!

Refurbished Hardware

Monitors		Drives		Other	
1701	$129.95	1541/C	$79.95	C64	$79.95
1702	$129.95	41 w/Dips	$94.95	64C	$99.95
1802	$149.95	1541-II	$99.95	128	$139.95
1802D	$159.95	1571	$119.95	128D	$299.95
1902	$169.95	1581	$139.95	SX-64	$299.95
1902A	$179.95	MSD-2	$119.95	1660	$19.95
1084	$199.95	1001SFD	$99.95	1670	$34.95
1084S	$229.95	Buscard-II	$59.95	A500	$129.95
Mono's	$44.95+	1530/C2N	$24.95	VIC-20	$59.95

Miscellaneous

Books	$10-$15	Printer Interfaces $49.95+
Prog's	$5-$20	Epyx Fastload Cartridge $34.95
Repairs	$ASK	Super Snapshot v4 $49.95
Manuals	$7	Super Grafix Jr. $39.95

New Hardware

New APROTEK Accessories

C24-2400 Baud (64/128)	$74.95
User Switch	$30.95
Convert-A-Com	$29.95

New CMD/J.P. PBM Accessories

JiffyDOS C64/SX64 'System'	$64.95
JiffyDOS 128/128D 'System'	$74.95
128 Kernal $57.95 64 Kernal	$47.95
Additional JiffyDOS Drive ROM	$32.95
RAMLink Bs. $209.95 c/w 0 MB	$259.95
c/w 1 MB $279.95 c/w 4MB	$344.95
Real Time Clock (Optional) Add	$24.95
FD-2000	$239.95
NEW Super Snapshot v5.22	$74.95
1750 Supercione REU 512K	$169.95

Ask For Anything! We May Have It!

Build your own 1581 disk drive!
Just add any PC 3.5 inch drive!

Kit Includes:
- Easy to follow instructions
- Case c/w Logic board
- External 1581/1541-II power supply
- Serial cable to chain into your system
- Expert Technical Support
- 90 Day Warranty through us
- Optional JiffyDOS ROM for only $32.95 more

Instant 1581 Kit/3.5 inch DSDD Bulk Disks/Replacement Parts

Instant 1581 Kit	$49.95
1581/1541-II Power Supply only	$24.95
1581 Logic Board only	$19.95
1581 Outer Case only	$12.95
OPTIONAL 1581 JIFFYDOS DRIVE ROM	$32.95
Bulk 50 pack 3.5 inch DSDD diskettes	$15.00

J.P. PBM Products By Mail
Box# 60515, N. Sheridan Mall P.O.
Downsview, Ont. Canada M3L 1B0
Tax-Canada + 7%GST, Ontario +8% PST

Send CDN Funds/20% USA Exchange
15 day Warranty On Refurbished Hdwr.
Allow 4-6 weeks for delivery
Catalogue Disk (64 Format) — $2

Shipping-($0-$25=$4, $26-$99=10%, $100-$199=8%, $200-$499=7.5%, $500+=6%, USA=15%)

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

Just For Starters

by Jason Compton

HELPFUL HINTS FOR HANDLING DISK DRIVES

I come not to bury floppy drives, nor to praise them, but to try to make your life with them a little easier.

In this column, we've recently discussed all the little add-ons you might want for your system to make your drives faster and more productive. But there are other tips and tricks to keep in mind that don't require any additional hardware.

Mystery Errors

One of the most frustrating crashes you can encounter as a Commodore user is a disk drive error in the middle of a game or application. In virtually all games and many productivity programs, it's not possible to check the type of disk error from the program itself, and not possible to exit to BASIC. You can reset or turn off your computer to get out of the crash, but doing that will reset the disk drive, and you'll never know what the red blinking was all about. If only you could see what that error was, you might be able to determine if there may be a physical error on the disk, a missing file you might be able to retrieve from a backup, or something else.

In general, when you want to check the error channel from BASIC, you can either use the short type-in program found in your drive manual, or one of many utility cartridges or ROM enhancements with a built-in DOS wedge. Alternately, if you have multiple drives but no utility cartridge, you can load a DOS

wedge such as the one found on the 1541/1571 Test Disk on the drive which is not displaying the error.

One way to find out what error has occurred if the program doesn't make any allowances is with a powerful freeze cartridge which can channel disk commands from the freeze menu. The Action Replay fits this category, but has become somewhat difficult to find. If you do have access to one, you can use the monitor or the disk tools to quickly check the error. Another freeze cartridge, the Final Cartridge III, will make an exit to BASIC without cycling the disk drives, so the error status will remain and you can check it then.

But for the rest of the world, the solution requires a little more effort. When I first learned of it, I had the same reaction you'll probably have: "Isn't that a bad idea?" But I am assured from some of the highest authorities around that what we are about to do is safe. Because resetting (or physically turning off and on) the Commodore causes the disk drives to spin and reset their error status (the blinking will stop and the error will be forgotten), we need to make sure the disk drive doesn't know the computer is resetting. The solution is simple and inelegant—remove the cable connecting the computer and disk drive while you reboot! I would recommend removing the disk drive end. So, when a pesky error shows up, pull out the cable from the drive, turn your Commodore off and then on (or hit the reset button on a 128), then plug the cable back into the drive and check the error!

Are You There?

Included here is a short little type-in program you can use to poll the chain of disk drives connected to the machine.

```
10 for i=8 to 30
20 open15,i,15:close15
30 if st=0 then print "device"
;dv;"is present"
40 next
```

When you run this program, you'll see a list of device numbers for all of the serial bus devices which are connected—at least those which

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

"Without a disk drive, it's very difficult to get along in the world. Keep yours happy... and you'll enjoy using your Commodore that much more."

are functional enough to return a certain command code to the computer.

Why might you find this useful? For one thing, if you're having some trouble with a multi-drive chain, you can use this to make sure that every drive is responding and that each of the device numbers you are expecting to see appear. Disk drive device numbers start at 8 (for somewhat arcane reasons—you might think 1 would be more logical, but at the time the decision was made, tape drives were much less expensive so it was thought they would be used extensively, hence the 1 designation for tapes.) Depending on what sort of drive you're using, they can range up to 11, 15, or 30. Each

drive needs a unique number. The most basic drives, the 1541 and 1571, range up to 11. These either have small DIP switches on the back to select the number (new style) or must be modified internally (old style) to make the change. So, you can use this program to ensure that each drive on the chain shows up once—if you're short a drive, you should recheck all of your cabling, power, and device number selection and then try again.

It could also be used as a quick method to test the functionality of a large supply of disk drives. It's not uncommon for an eagle-eyed Commodore user to come across a large cache of disused or unwanted equipment, like a stack of floppy drives a school no longer needs. The condition of the equipment might be suspect, however. If you can assign the drives different numbers, hook them all up, and run this little program, you can at least verify that somebody's home inside the drive. Of course, if they've been dropped, drop-kicked, or otherwise abused, there may be physical problems (like the alignment of the drive head) that won't show up in this simple test.

Mass Extermination

Sometimes, you'll want to format a lot of disks at once. Some other 8-bit users like to make fun of Commodore computers because the disk formatting command from BASIC is relatively more convoluted than theirs—and they do have something of a point. Any old DOS wedge speeds the process considerably. Or, you can use a special format utility program, such as the one we've provided here. The EZFormat program will allow you to format disks in any drive you have connected to your computer, as many times as you want, with a simple keypress.

There are really two format commands on the Commodore. One cleans the entire disk thoroughly and places a new name and two-letter ID code on the disk. (The ID shows up on the right hand of the first line of your directory listing, before the "2A" common with 1541 disks.) The second format only wipes the record of the files on the disk and changes the name, leaving the ID intact. All of the data is really still on the disk, but now the drive won't be aware of it and will blissfully put your new data over the old. When formatting a disk for the very first time, you must do a thorough, name plus ID format. For example, if you're using fresh blank disks or disks previously in use on another platform, you will need to do the more complete format before using them for the first time. After that, you can feel free to use the quick version. If, however, you suspect a disk might have a physical flaw after you've been using it for a time on your computer and you want to use that disk again, it's best to do a full format—that way, if there are any errors on the disk, you'll know about it in the formatting process and can file the disk

in the appropriate disposal facility, rather than losing your valuable files later on.

EZFormat will allow you to format whatever disk is in any powered drive with a simple menu choice. You can hit "Y" to format the disk in the device named, "N" to continue on to the next device, or "Q" to exit the program. EZFormat only performs "full" formats. After entering the name you will be prompted for an ID code. If you do not want to enter your own name and/or ID code, just press the RETURN key at the promts and the program will randomly create one for you. EZFormat can be very helpful if you're preparing a large batch of disks for use—say, you're planning to make a backup, or will be downloading a lot of files very shortly.

Other Hints

Disk errors are often caused by contaminated read/write head. Check your local Radio Shack, and you should be able to find a head cleaning kit made specifically for disk drives. These are like the head cleaning kits for video

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

or audio tape decks, but come with a disk instead of a tape.

Not being able to read disks can also be caused by head alignment problems. One easy way to spot this is if you're able to format, write and read new disks, while all of your older disks turn up disk errors or cause the drive head to bang a lot. If you have this problem, the only proper cure is to have the drive serviced. You might be tempted to just buy a second-hand drive instead, since they can often be had for less than it costs to get the alignment... but be aware that there's no guarantee that the used drive you buy will have proper alignment either.

Having too many devices attached to the serial bus or leaving devices attached and turned off can cause bus loading problems. Any drive you have attached should be turned on when the computer is in use, and should have a unique device number. Not following this advice could create problems—bad loads that result in getting Syntax Errors when trying to run a program, or complete lockups of the serial bus when attempting to access drives. A bad serial cable can also cause similar problems.

Don't place your disk drives immediately next to your monitor, and also keep serial cables as far away from your monitor as is possible. Monitors emit a lot of Radio Frequency (RF) noise into the surrounding area, and this can be easily picked up by nearby cables or components inside your disk drives.

To extend the life of your disk drives, make sure they are always well-ventilated. Try not to stack two large drives right on top of the other, for example, particularly those with an integrated power supply (such as the 1541, 1541C, and 1571). The drive most prone to heat troubles tends to be the 1541 with the spring-loaded push door, so be particularly cautious around those models.

Since good disk-notchers (used to enable writing to the flip side of floppies on 1541 drives) aren't in very ready supply anymore (as most of the world doesn't use that style of disk any longer), any regular old hand paper hole punch will do the trick quite nicely.

Got a "pinched" disk, where the disk sleeve is binding the disk and keeping it from rotating freely? If you're careful, you can cut open the faulty sleeve with an Xacto knife and place the media in a different sleeve. You probably don't want to keep using a disk this way, but it makes a good temporary means for copying the disk's contents.

Without a disk drive, it's very difficult to get along in the world. Keep yours happy—and make sure it's keeping you happy—and you'll enjoy using your Commodore that much more.

√Σ	EZFORMAT
40	0 rem copyright 1998 creativie micro des igns
164	100 printchr$(147);"ez-formatter"
118	110 dv=8:nd=0
178	120 :
177	130 open15,dv,15:close15:ifst=0thennd=1: goto170
138	140 dv=dv+1:ifdv=31thendv=8:ifnd=0thenpr int"no devices found!":end
216	150 goto130
218	160 :
105	170 printchr$(147);"ez-formatter"
215	180 printchr$(19);chr$(17);chr$(17);"fo rmat disks in device{3 SPACES}";
107	190 printchr$(157);chr$(157);chr$(157); dv;chr$(157);"? (y/n/q) "
26	200 getk$:ifk$<>"y"andk$<>"n"andk$<>"q" then200
143	210 ifk$="n"then140
117	220 ifk$="q"thenend
33	230 :
167	240 print:print"enter name (16 chars ma x):"
12	250 print"{2 SPACES}";:na$="":inputna$
203	260 ifna$=""thenna$=chr$(int(rnd(1)*26) +65)+chr$(int(rnd(1)*10)+48)
227	270 iflen(na$)>16thenna$=left$(na$,16)
83	280 :
137	290 print:print"enter id (2 chars):"
4	300 print"{2 SPACES}";:id$="":inputid$
169	310 ifid$=""thenid$=chr$(int(rnd(1)*26) +65)+chr$(int(rnd(1)*10)+48)
205	320 iflen(id$)>2thenid$=left$(id$,2)
54	330 iflen(id$)=1thenid$=id$+chr$(int(rn d(1)*10)+48)
143	340 :
182	350 print:print"ready to format disk in device";dv
236	360 print"as ";na$;",";id$
58	370 print:print"proceed? (y/n/q)"
214	380 getk$:ifk$<>"y"andk$<>"n"andk$<>"q" then380
122	390 ifk$="n"then170
8	400 ifk$="q"thenend
213	410 :
50	420 print"fomatting..."
228	430 open15,dv,15
23	440 c$="n0:"+na$+","+id$
48	450 print#15,c$;:print"{2 SPACES}";
62	460 get#15,e$:printe$;:ifst<>64then460
116	470 close15
24	480 :
19	490 print:print"format another? (y/n)"
29	500 getk$:ifk$<>"y"andk$<>"n"then500
61	510 ifk$="y"then170
138	520 end

Jason Compton is a freelance writer and Editor of Amiga Report, the online news resource for Commodore Amiga users. Jason can be contacted via Email at jason@cmdweb.com.

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

CHECKSUM

Commodore World's Program Entry Checking Program and Tips on Entering Programs from this Magazine

CHECKSUM is a program that proofreads your typing when you enter a listing from the magazine. It assigns a numerical value to each character that you type, adds up the values of the line you typed and displays the sum. (Checksum, therefore, means that it checks your typing by summing the characters.) It also verifies that you have typed the characters in the proper order. (Checksum won't tell you if you miss a line of code entirely, so verify that yourself.) Checksum runs "in the background" when you type in lines of program code. Whenever you type a line and press RETURN, Checksum will display a value. Compare that value to the value published next to the line of code in the magazine. If the numbers match, you've typed the line correctly. Simple.

Typing in CHECKSUM

First, type in Checksum carefully from the listing on this page. Be sure to press RETURN after every line to enter it into memory. Once you have typed the program, *save it*. In fact, save it a few times while you're typing, just to be safe. (This is good advice whenever you type in a program. I usually change the name each time I save; for example, Checksum1, Checksum2, and so on.) Double-check your work, making sure that you've typed in every line and that you've pressed RETURN after every line you've typed. If you make errors when typing in Checksum, a test run of Checksum will tell you which line is incorrect. (This safety feature works only in the Checksum program itself, and does not apply to any other listings in the magazine.) Whenever you find a typing error (in any program listing), fix it, press RETURN to enter the change, save the program again and try another run. Repeat this process as often as necessary. Important tip: Don't get discouraged if the program won't run. Be patient. Be thorough. It will work eventually. You'll know your Checksum is ready when you see the line:

```
TO TOGGLE ON OR OFF, SYS XXXX
```

Entering Programs Using CHECKSUM

When you're ready to type in your first listing from the magazine, load and run Checksum. Make a note of the number that is displayed on the screen (49152 for the C-64; 3328 for the C-128). To activate and deactivate Checksum, type SYS followed by that number, then press RETURN. You need to have Checksum active whenever you're typing in a listing. Checksum must be deactivated, however, when you run the new program. The next step is typing in a new program listing as it appears in the magazine.

As you begin, you'll notice that to the left of the start of each line is a number. Don't type this number in: It's simply the Checksum value. Stop typing at the end of the program line and press RETURN. If you've typed the line correctly, the number displayed on the screen will match the Checksum value. If the numbers don't match, you've made a mistake. Check the line carefully, make your changes and press RETURN. The computer won't know you've made a change unless you press RETURN on the changed line to enter it. A few type-in hints: The Checksum does not verify blank spaces in the program lines unless they are within quotation marks, because adding or omitting such spaces will not affect the operation of the program. The exception to this is hexadecimal Data statements. These are the Data statements, such as this one, that don't have commas:

```
100 DATA 123456789012345678901234567890*123456789012345
67890*12345678901234567890*
```

In statements such as these, you must have one space between the word DATA and the numbers that follow. Checksum will not catch that error.

Special Key Combinations

As you type, you may be confused the first time you see curly braces {}. These braces mean "perform the function explained within." For example, {22 SPACES} means that you need to press the space bar 22 times. Don't type the braces (you can't, of course, because there are no curly braces in the Commodore character set). Here are some other common examples:

{CLEAR/HOME}	hold down the SHIFT key and press the CLR-HOME key.
{2 CRSR DN}	tap the cursor down key twice.
{CTRL i}	hold the CONTOL key and press the I key.
{CMDR t}	hold down the COMMODORE key and press the T key.

Continue typing in your program, saving often and checking each checksum value with the one in the magazine, until you've finished the listing. Phew! So now you're ready to run your program, right? Not quite. First, save it. Second, deactivate Checksum by typing SYS followed by 49152 for the C-64 or 3328 for the C-128. Now you can run. Don't be discouraged if you still get an error. It happens. Use Checksum faithfully. Be patient. Be thorough. It will work eventually.

CHECKSUM

```
100 rem cw checksum 64/128
110 mo=128:sa=3328
120 if peek(65533)<>255 then mo=64:sa=49152
130 i=0:ck=0:ch=0:ln=300
140 for k=0 to 16
150 for j=1 to 10
160 read b:if b>255 then goto 280
170 ch=ch+b:poke sa+i,b:i=i+1
180 next j
190 read lc:if lc<>ch then goto 280
200 ch=0:ln=ln+10
210 next k
220 pokesa+110,240:pokesa+111,38:pokesa+140,234
230 printchr$(147):print"cw checksum";str$(mo):print
240 print"to toggle on or off, sys";sa:if mo=128 then 270
250 pokesa+13,124:pokesa+15,165:pokesa+25,124:pokesa+26,165
260 pokesa+39,20:pokesa+41,21:pokesa+123,205:pokesa+124,189
270 pokesa+4,int(sa/256):sys sa:new
280 print"you have a data error in line";ln;"!":end
290 rem do not change these data statements!
300 data 120,162,24,160,13,173,4,3,201,24,884
310 data 208,4,162,13,160,67,142,4,3,140,903
320 data 5,3,88,96,32,13,67,152,72,169,697
330 data 0,141,0,255,133,176,133,180,166,22,1206
340 data 164,23,134,167,132,168,170,189,0,2,1149
350 data 240,58,201,48,144,7,201,58,176,3,1136
360 data 232,208,240,189,0,2,240,42,201,32,1386
370 data 208,4,164,180,240,31,201,34,208,6,1276
380 data 165,180,73,1,133,180,230,176,164,176,1478
390 data 165,167,24,125,0,2,133,167,165,168,1116
400 data 105,0,133,168,136,208,239,232,208,209,1638
410 data 169,42,32,210,255,165,167,69,168,170,1447
420 data 169,0,32,50,142,169,32,32,210,255,1091
430 data 32,210,255,169,13,32,210,255,104,168,1448
440 data 96,104,170,24,32,240,255,104,168,96,1289
450 data 56,32,240,255,138,72,152,72,24,162,1203
460 data 0,160,0,32,240,255,169,18,208,198,1280
```


http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

Graphic Interpretation

by Bruce Thomas

GEOS: FOR A GOOD TIME...

Time. Something we all have in equal amounts no matter what our social or financial standing is. Time is one of our great constants. Every day, for every person on earth, is 24 hours long. Every year is 365.25 days. There is no escaping time. You may last from January to December without new clothes or a new car, but you need a new calendar every year.

For some of us, time is more constant than for others. To see if you are one of these people, load GEOS and take a look at the top right corner of the Desktop. Does your clock say 07/06/88 01:00 PM (this is the default setting in GEOS 64 V2.0)? If it does you are definitely one of the Chronologically Challenged (C.C.) and need to pay attention to the information in this article. If your clock says something different—good for you, but read on anyway as you may discover some interesting ways to handle your time.

2K or 2 8's... Which Is The Problem?

Every time we turn around these days it seems like there is someone else pointing out some new angle on the infamous Y2K problem. This situation will come to a head in a little over a year when computer systems have to deal with dates in two centuries.

For GEOS users the Year 2000 situation is not too serious. Only a limited number of GEOS applications will be affected by this. The Desktop Clock only displays the last two digits in the year as does the File INFO box. A patch for the Calendar program was published in Commodore World #10 and is available on the CMD web site. GeoWrite and GeoPublish will need to be fixed so that the DATE function will print the proper century (like the Calendar, only two bytes should need to be changed).

The real problem for GEOS users is not Y2K but Y88 as indicated by the C.C. users clock. GEOS stamps the date and time on every file you create. You can view this information by opening the File Info box (highlight the file and choose INFO from the FILE menu or press COMMODORE-Q) or by choosing the VIEW menu and then the BY DATE option. To avoid the Y88 problem you must make sure your clock is set when you boot GEOS.

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

"For GEOS users the Year 2000 situation is not too serious. Only a limited number of GEOS applications will be affected..."

Tick Tock, Tick Talk

Having the date and time of modification associated with your files is a fantastic help. Unless you use a very descriptive naming convention on your files it would otherwise be difficult to tell which file is the most recent one. Setting the GEOS clock is not something that all users do, but everyone should.

Early versions of GEOS made forgetting about the clock easy. This was because there was no clock on the Desktop. Once V2.0 arrived and the clock stared out at you it became easier to set, but you still had to remember to set it. There are many ways to do this—some better than others.

For starters you can simply click on the clock with your input device and then enter the date and time. If you like menus and want to use two clicks to set the clock you can choose the SET CLOCK option under the OPTIONS menu. If either of these options aren't simple enough for you there is a Desk Accessory in GEOS that lets you set the time and date among other things.

Not only can you set the DATE and TIME with the Preference Manager but you can also customize your mouse cursor and screen colors. Click the Date or Time box and enter the new values. Make sure you press RETURN prior to moving your pointer as the new values will be lost if you don't. Before Auto-Exec files were introduced in V2.0 customized fake input drivers were used to load the Preference Manager during the boot process so we could set the date and time.

A Done Deal

With the new Auto-Exec files in V2.0 there came a flurry of small files to ensure your clock was set. These files, when placed on your boot disk, would prompt you in some way to enter the time and date. Using one of these programs would ensure you didn't suffer from the Y88 problem. But which one to use?

I must admit, I tried a bunch of them. I finally settled on a 2K file by Rick Koch called *AutoClock V1.5* (dated 4/1/91 12:00 AM). What set this one apart from all of the rest was one nifty feature that it has, plus it works in GEOS 128 also.

AutoClock V1.5 saves the Date and Time that you enter. The next time you boot GEOS you can see when you booted it last as you set the time for your new session. For those of us who use GEOS every day this is not a big deal, but if you are a casual user you may want to know.

But I Don't Want To Set My Clock!

Fine. And that is the way I like it too. Let's face it, we're basically lazy. That's why we use computers. Let the machine do the work for us. Check my spelling, balance my budget, calculate my taxes, set my clock (!?).

In keeping with the tradition of GEOS some people early on figured a way to do things and others have improved on that. There were some clock units produced that plugged into your joystick port (with a pass-through connector for your mouse) and GEOS would read the time and set the Desktop clock during the boot process. There are also plans available if you want to build your own clock unit (SmartWatch) and GEOS programs to access it.

Nowadays you can still get a clock unit that plugs into your joystick port. This one, however, doesn't have a pass-through connector because it is already a mouse. The CMD SmartMouse improved on the old clock and the mouse at the same time by adding a third mouse button for improved functionality.

If you are happy with your present input device and don't want to buy a SmartMouse then maybe you need a new disk drive or mass storage device. Yes, RAMLink and the CMD FD-2000 3.5" floppy drive can both be ordered with an optional internal clock module (I have one in my FD). The HD Series Hard Drives come standard with an internal clock. All four of the CMD units mentioned here come with handy Auto-Exec files to set the GEOS clock during the boot process with no user intervention.

So there it is. As a GEOS user you are not going to be too badly affected by the Y2K problem. What we need to erradicate is the Y88 problem and, as you see, it is an easy one to stomp on. Until next time, enGEOy your Commodore!

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

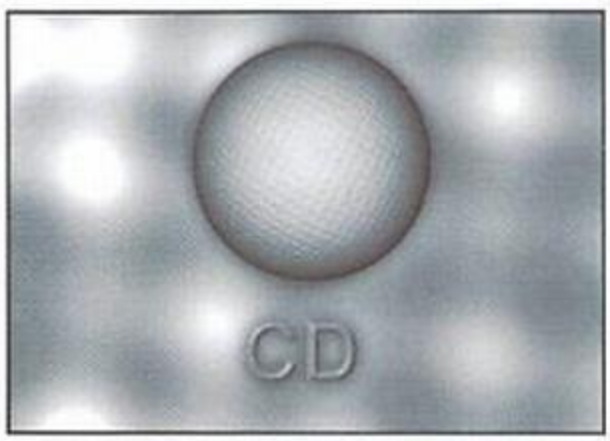
Carrier Detect

By Gaelyne R. Gasson

TELECOMMUNICATIONS NEWS & UPDATES

Bulletin Board News

Looking for BBS's to call? Dick Cunningham (oasis@pipeline.com) has been maintaining the Commodore 64/128 BBS List (*http://www.jbrain.com/pub/cbm/faq/cbm-bbs-list.txt*), covering only those BBS's which are up and running. The list is posted twice a month to the comp.sys.cbm newsgroup. Another verified list contains boards that support Commodore computing but are run on other platform computers (*http://www.jbrain.com/pub/cbm/faq/cbm-supp-bbs-list.txt*).



Try a SuperCPU BBS

If you don't already have a SuperCPU, you can experience what using one is like by phoning a Commodore BBS and checking out the speed of the system. The following boards are run on either the C64 or C128 and operate at 20 MHz.

BBS Name	Phone Number	Location	BBS/Network Software
Kapital K'pers	(941)-656-5613	N. Fort Myers, FL	Image/CommNet
The Mailbox	(610)-834-9694	Conshohocken, PA	Image/CommNet
Star Base 2	(941)-748-6618	Bradenton, FL	Color 64
OMNI-World-Germany	+49-8121-971942	Gelting, Germany	OMNI BBS

Fidonet BBS's on the Internet

Many people have problems finding a local Fidonet BBS that carries the CBM Fidonet echos, but the good news is that there are Fidonet boards that can be reached using telnet on the Internet. In order to transfer files using regular protocols during your telnet session (such as when using a QWK door to transfer mail), the command to start the session should be in the format of "telnet -8 *bbsname*". Try these BBS's available via telnet: *bbs.neverending.com*, *cereal.mv.com*, and *juge.com*. If you have web access, but don't have a telnet client that can perform file transfers, you can read Fidonet messages directly via web pages at *http://twww.staffnet.com/echos/content.html-ssi*. See *http://videocam.net.au/~gaelyne/cbmfido.html* for additional info.

Desterm v3 in Wide-BETA Testing

Matthew Desmond has been busy, and released two wide beta versions (at the time of this writing) of Desterm v3 with another update coming soon. Desterm v3 is compatible with CMD devices, the Turbo-232 UART cartridge (up to 115200 baud). It supports 2 Megabytes of RAM Expansion, has RTS/CTS (hardware) flow control, and Zmodem (receive-only at present), and includes a new character set editor as well. The latest update is always available from the Official Desterm 128 Web site at *http://www.ionline.net/~mdesmond/desterm.html* (Files: *undar128.exe, des-302.da0, des-302.da1, des-302.da2, des-302.da3, des-302.da4*).

Dialogue 128 Freeware

Gary Farmaner recently announced in the comp.sys.cbm newsgroup that his software, Dialogue128 is now freeware. New users of Dialogue128 should be made aware that they must use the disk side that corresponds to their modem interface type (side one is for user port modems and interfaces, while side two supports SwiftLink and similar interfaces). Also, unless your modem has been previously set with &C1 (carrier detect follows carrier) as a default, the program won't allow you to dial out or send any commands. If you experience either of these problems, then while in the terminal window type three plus symbols ("+++") and then press <RETURN> very quickly; this will place your modem into its command mode. Type AT&C1&W to change the modem's default setting for carrier detection and save it to the modem's NVRAM (Non-Volitile Random Access Memory). You can get all of the files for Dialogue 128 at *ftp://videocam.net.au/cbm/*

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

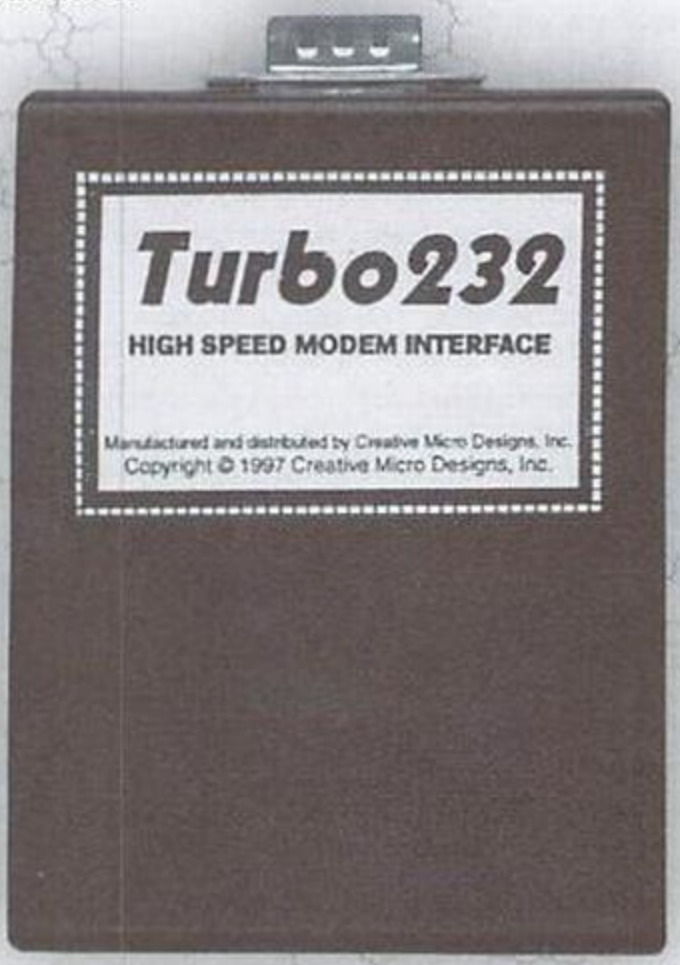
http://www.oldgamesitalia.net/

Turbo232

The New Standard in Modem Interfaces

- **High-Speed Support** *Turbo232 keeps up with today's fastest modems, offering speeds up to 230Kbps*
- **Easy-to-use!** *Just plug Turbo232 into your computer's expansion port and connect it to almost any external RS-232 modem*
- **SwiftLink Compatible** *Designed to work with programs written for the popular SwiftLink cartridge*
- **Easy Configuration** *A simple jumper block lets you quickly change the configuration for special situations*
- **Null Transfers** *May be used as a null-modem interface for direct transfers with other computers*

The quest for faster online access has made 33.6Kbps modems the new standard, and it won't be long before 57.6Kbps modems move into the spotlight. CMD's Turbo232 picks up where SwiftLink left off, helping you keep pace with today's faster modems!


Turbo232
HIGH SPEED MODEM INTERFACE
Manufactured and distributed by Creative Micro Designs, Inc.
Copyright © 1997 Creative Micro Designs, Inc.

US Robotics Sportster

- **33.6Kbps Faxmodem**
- **Upgradable to 56Kbps**
- **Compatible with geoFAX**
- **Perfect for use with Turbo232**

Turbo232	**$39.95**
Modem Cable	**$9.95**
Turbo232/Novaterm 9.6	**$65.00**
USR Sportster 33.6Kbps Faxmodem	**$169.00**
Turbo232/USR Sportster 33.6	**$199.00**
Turbo232/Sportster/Novaterm 9.6	**$214.00**

Note: Prices do not include shipping. Prices and specifications are subject to change without notice. Not responsible for typographical errors.

Creative Micro Designs, Inc.
1-800-638-3263

http://www.oldgamesitalia.net/
http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

Dialogue_128/ (Files: [side one of program disk:] *dlg-s1-1.sfx, dlg-s1-2.sfx, dlg-s1-3.sfx, dlg-s1-4.sfx,* [side two of program disk:] *dlg-s2-1.sfdlg-s2-2.sfx, dlg-s2-3.sfx, dlg-s4-4.sfx,* [documentation files:] *dlg-doc1.sfx, dlg-doc2.sfx,dlg-doc3.sfx, dlg-doc4.sfx*).

PKZIP 2.04g Unzipper

Someone had to do it, and Errol Smith now has the distinction of being the first and only Commodore programmer to create a program to unzip those pesky PKZip 2.04g files. This 21 block program (after it self-extracts) even supports CMD device paths. It's essential for anyone who's ever had to cope with Zip files created on other platform computers that Bill Lucier and David Schmoll's unzip programs couldn't handle. This program also removes a major stumbling block for offline mail reading (QWKie or QWKRR) with BBS's that automatically send PKZip 2.04g mail packets. You can find the program at *http://www.ros.com.au/~errol/64.html* (File: *unzp6420.prg*).

QWKRR128 v5.1

The first major update for QWKRR128 in over two years was released last year. New features include a word search utility, MIME and UUencoded files can be decoded to screen, disk or printer, and you can attach text or binary files to outgoing messages using Base64 (MIME) or UUencode. Messages of any size can be read, with reverse paging so you can see previous screens of the same message. It also supports full 255byte character sets, and uses keyboard tables that can be reconfigured for non-English users. Rod Gasson says he still has a few improvements to make to the program before he considers it complete, and is continuing work on it. You can get the latest version from *http://videocam.net.au/qwkrr/* (Files: *QWKRR5-0.TXT, QWKRR5-1.SFX, QWKRR5-2.SFX, QWKRR5-3.SFX, QWKRR5-4.SFX, QWKRR5-5.SFX*).

Graphic, Text and File Conversions

GoDot http://users.aol.com/howtogodot/welcome.htm

Since there is no Commodore 64 or 128 graphical Web browser at this point, we download graphics to view them offline. This has become much easier with the new English version of GoDot (available from CMD). GoDot lets us view GIF87a and GIF89a type GIF files, although it doesn't yet handle interlaced type GIF files. The demo version of GoDot is fully functional with these exceptions: it doesn't save or print files. Program author Arndt Dettke (*god.ADettke@t-online.de*) has written new loader and saver files for compressed Doodle and Koala files since the English commercial version became available, and is also considering making a module to save GIF files. You can obtain the demo version of GoDot from *ftp://videocam.net.au/cbm/graphics/GoDot/* (Files: *godotdm1.sfx, godotdm2.sfx, godotdm3.sfx*). The new compressed Doodle and Koala loaders and savers are also available at this site (Files: *doodle.ldr, doodle.svr, koala.ldr* and *koala.svr*).

Another useful graphic utility is C2G.BIN (author unknown). It has a simple name, but this little C64 utility lets us to convert Doodle, Koala, Advanced Art Studio, GeoPaint (non-GEOS format) and RLE files to GIF format. This is extremely useful for sharing our artwork with others online and for creating graphics on our Web pages. This program is available at *ftp://videocam.net.au/cbm/graphpics/c2g.bin.*

John Halloran saw a comment I made in one of the Fidonet echos, took it to heart, and created QTT 64v2. At the time, there were no stand-alone C64 programs available that would change the end of line format of text files. There are three different file formats that we commonly deal with on the net (Commodore, MS-DOS, and UNIX), and having a quick utility to deal with the end-of-line differences would relieve a lot of headaches. The latest version of John's QTT64 automatically detects the current format and offers a menu of conversion choices. The program can also convert ASCII files to PETASCII format. You'll find this program at *http://videocam.net.au/qtt64/* (File: *qtt64v2.sfx*).

GEOS users with some net-saavy may find GeoConvert 97 very useful. This is a German GEOS program written by Markus Kanet (*106744.730@compuserve.com*) that converts GEOS files to CBM format (and vice versa), Uuencode, and D64 files. The documentation and program messages have been translated to English by Arndt Dettke. You'll find this program and associated documentation at *ftp://videocam.net.au/cbm/geos* (Files: *conv97d.sfx, conv97d-english.txt, conv97d-msgs.txt*).

Commodore Mail List Updates

Nick Rossi started the Novaterm Mail List to provide Novaterm users with a way to share comments, questions, and answers with each other. To subscribe to the list send Email with a subject of "subscribe" to: *novaterm-list@eskimo.com*

Jim Brain's list services have recently grown to encompass two more mailing lists (SCPU and TIFCU). Among the lists available are:

List Name	Topic
scpu	CMD's SuperCPU's. Moderated/Owned by Dick Cunningham.
tifcu	The Internet for Commodore Users. Moderated/Owned by Gaelyne Gasson.
news-csc-dist	comp.sys.cbm newsgroup*
news-cbc-dist	comp.binaries.cbm newsgroup*
news-cec-dist	comp.emulators.cbm newsgroup*
chacking-dist	C=Hacking Magazine (sent when new issue is available).
cbmfaq-dist	FAQ file for comp.sys.cbm newsgroup (sent when the FAQ is updated).

*Note: To keep list traffic to a minimum, only those who have no other access to Usenet newsgroups should subscribe to these lists.

To subscribe to any of these lists, send Email to *listserv@mail.jbrain.com*, and in the body of the message type:

subscribe *listname Firstname Lastname max-lines-per-Email(optional)*

Example:

subscribe tifcu Gaelyne Gasson 1000

The list name should be in lower case. If you set the max lines per Email, the list digest will be split up into separate messages until the entire digest has been sent. If this is left unspecified, the entire digest is sent. To find out what other lists are offered by Jim's list server, send an Email to *listserv@mail.jbrain.com* with the word "lists" as the message body.

Another interesting mail service is the File Converter provided by Aaron Baugher (*abaugher@rnet.com*). While this isn't a mailing list, it is a useful Email service provided for Commodore users that will convert certain types of files. The service converts *.jpg* files (a graphics

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

file format) into *.gif* format, and *.zip* files into *.tar.gz* format (for those who don't have access to the UNIX unzip program). Aaron developed the system in response to messages in comp.sys.cbm, and in the Commodor and TIFCU mailing lists, as a means to assist those who don't have access to other means of converting these file types. To find out how to use this service, send Email to *cfc@haruchai.rnet.com* with the word "help" as the Subject.

IRC Channel Update

A few Commodore IRC channels have changed IRC servers, or times when they are available since we last discussed this subject back in Issue #17. Here's an updated list of channels, IRC servers, and when they're open for visitors:

Channel	Network	Day/Time
#c-64	IRCnet	24hrs a day
#c-64	Efnet	24hrs a day (active N.American afternoon)
#c64ntsc	IRCnet	Thursday Evenings PST
#c-net	Dalnet	Sundays starting at 3pm EST
#QWKRR	Dalnet	Thurs Evenings 9pm (N.American EST)

Online Commodore News for Newsletter Editors

This service came about due to a request by Dale K. Sidebottom. He suggested to Jim Brain that a repository for Commodore newsletter articles would benefit many User Group editors who need fresh material. It also helps editors avoid re-typing and scanning errors that can creep into monthly news reports, and should help editors when creating newsletters based on a particular theme. Each participating editor will submit one article each month, and in return they receive all the articles submitted by other editors during the month. Graphics, special files and other items can be attached to the articles. Jim plans to include Email and Web search, as well as other additions to the system. You'll find this service at *http://www.jbrain.com/vicug/cnews/*.

Wrap Up

Jim Brain's Commodore News plan relies on newsletter editors for it work, so if you're online but your newsletter editor isn't, perhaps you can get permission from your club to help out and build a few online bridges. In fact, everything mentioned in this column relies on you to make these things a success, from the BBS's that support us to programmers producing new software. It never hurts to let an author know how much you enjoy their program, or thank a sysop for making their BBS available.

Gaelyne Gasson is the author of "The Internet for Commodore C64/128 Users" and can be contacted via Email at gaelyne@cmdweb.com or visit her web site at: http://videocam.net.au/~gaelyne.

CPU

P.O. Box 1817
Shelton, WA 98584

The Commodore 128/64 Power User Newsletter

CPU is a bi-monthly publication that for two years has kept its readers abreast of new developments and helped those to get more out of their investments.

Sample/Back Issues:	$3.50
6 Issue Subscription:	$15.00 (US)
Canada/Mexico:	$21.00 (US)
Foreign:	$27.00 (US)

Commodore World Back Issues

CW1	Commodore World Issue 1	CW12	Commodore World Issue 12
CW2	Commodore World Issue 2	CW13	Commodore World Issue 13
CW3	Commodore World Issue 3	CW14	Commodore World Issue 14
CW4	Commodore World Issue 4	CW15	Commodore World Issue 15
CW5	Commodore World Issue 5	CW16	Commodore World Issue 16
CW6	Commodore World Issue 6	CW17	Commodore World Issue 17
CW7	Commodore World Issue 7	CW18	Commodore World Issue 18
CW8	Commodore World Issue 8	CW19	Commodore World Issue 19
CW9	Commodore World Issue 9	CW20	Commodore World Issue 20
CW10	Commodore World Issue 10	CW21	Commodore World Issue 21
CW11	Commodore World Issue 11	CW22	Commodore World Issue 22

Shipping: U.S. and Canada $2.00 for first issue, plus $1.00 per additional issues.; Foreign $5.00 per issue.

TO ORDER CALL 1-800-638-3263

NOW AVAILABLE

Wheels™

The new operating system upgrade for GEOS 64
Now you can have proper support for all your CMD devices

Wheels 64 requires the following:
GEOS 64 V2.0
1541 for the initial installation
Ram expansion (most types supported)

Only $36

plus $4 for shipping and handling to North American addresses or $6 elsewhere

send check or money order to:
Click Here Software Co.
P.O. Box 606
Charlotte MI 48813

For more information phone:
1-517-543-5202
or visit www.people.delphi.com/arca93

Wheels 128 will be introduced at the Chicago EXPO on October 24th

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

816 BEAT

THINGS TO LOOK OUT FOR WHEN PROGRAMMING THE 65816

By Mark Fellows

Programming the 65C816 can be a real pleasure. The new instructions, addressing modes and 16-bit capability all make life easier for the ML programmer. Writing a program in '816 Native Mode almost always results in code that is faster and smaller than the 6502 equivalent. As a result, it made sense to utilize as many of the new features as possible when writing the CMD SuperCPU DOS. During the debugging process, we learned about some pitfalls that can catch even the experienced 6502 programmer unaware. In fact, experienced 6502 ML programmers may be *more* susceptible to some of the things we'll cover in this article. As we found out, knowing the 6502 inside and out can lead the programmer to make certain incorrect assumptions about the operation of the 65C816. In this article we will cover some of the things that programmers need to beware of as they enter the domain of the 65C816.

BIT Immediate

At first glance, this new addressing mode for the BIT instruction seems pretty exciting. Our first thought was: great! now we can easily check the status of Bits 7 & 6 in the accumulator as well as a third bit with a simple and quick 2-cycle instruction. The example below should test Bits 7, 6 and 0 (we thought):

```
BIT #%00000001
```

We assumed that the new BIT Immediate addressing mode would work exactly like the other BIT addressing modes carried over from the 6502 (BIT Zero Page and BIT Absolute). In other words, as a result of executing a BIT Immediate instruction, the Negative (minus) flag should be set if Bit 7 of the accumulator is a 1 and the Overflow flag should be set if Bit 6 is a 1. In addition, the Zero flag should be set or cleared according to the result of a logical AND between the contents of the accumulator and the operand. In the example above, the Zero flag would be set if Bit 0 of the accumulator was a 0 and cleared if Bit 0 was a 1. Without checking the 65C816 programmers reference, we went ahead and used the BIT Immediate instruction in our programs. After some fruitless debugging time and head scratching, we decided to check the reference guide just in case something worked differently with the new addressing mode. Surprise! There *is* a difference with BIT Immediate (actually two differences):

1. BIT Immediate does not set the Overflow flag according to Bit 6 of the accumulator (Overflow remains unchanged).
2. BIT Immediate does not set the Negative flag according to Bit 7 of the accumulator (the Negative flag remains unchanged).

In other words, only the Zero flag is affected after a BIT Immediate is executed—you cannot use a BIT Immediate instruction to test three bits at once like you can with the other two BIT addressing modes (Zero Page and Absolute). However, BIT Immediate provides the 65C816 programmer with a quick and easy way to test any individual bit in the accumulator without disturbing the accumulator contents. Individual bits can be tested with the other BIT addressing modes only if an eight-byte table is included in the source code. For example, a 6502 program capable of testing any accumulator bit would require the following code:

```
        BIT BIT0

BIT0    .BYT %00000001
BIT1    .BYT %00000010
BIT2    .BYT %00000100
BIT3    .BYT %00001000
BIT4    .BYT %00010000
BIT5    .BYT %00100000
BIT6    .BYT %01000000
BIT7    .BYT %10000000
```

Of course, including an 8-byte table is not a large penalty to pay, but if the table is located above zero page, each BIT absolute takes 4 cycles to execute—twice as long as the 65C816 BIT Immediate instruction. Execution time can be cut to 3 cycles by locating the table in Zero Page, but this wastes valuable Zero Page resources.

There is one more thing to remember about the BIT instruction on the 65C816 in Native mode: If you are using 16-bit accumulator/memory, then BIT Zero Page and BIT Absolute test bits 15 and 14 of the operand memory location (Bit 15 affects the Negative flag; Bit 14 affects the Overflow). Because 16-bit memory accesses are organized in high-byte - low-byte order, Bits 15 and 14 are located at Bits 7 and 6 in the first byte of the memory location. As a result, the following BIT Absolute instruction sets both the Negative and Overflow flags *in both 8 and 16 bit modes*::

```
        BIT DATA

DATA    .BYT %11000000
        .BYT %00000000
```

If you are testing bits in the accumulator with BIT Immediate in 16-bit mode, you must remember to use a 16-bit operand. Bits 0-7 are located in the .A register; Bits 8-15 are located in the .B register. The following example tests Bit 12 of the 16-bit accumulator (Bit 4 of the .B register):

```
        BIT #%0001000000000000
```


http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

The STZ Instruction

STZ is one of the most useful new 65C816 instructions. It allows you to clear a memory location without first loading the accumulator with 0, which provides many benefits for the machine-language programmer. The first and most obvious advantage of using STZ is that the contents of the accumulator is left untouched. In a worst-case scenario, the following 6502 code is required when a memory location must be cleared while retaining the contents of the accumulator:

```
PHA             ;SAVE .A ON STACK
LDA #$00        ;LOAD .A WITH 00
STA LOCATION    ;CLEAR THE MEMORY LOCATION
PLA             ;RESTORE .A
```

The same thing can be achieved on the 65C816 by using a single STZ instruction:

```
STZ LOCATION    ;CLEAR THE MEMORY LOCATION
```

These examples make clear the other advantages of STZ—smaller code size and speed. Assuming the memory location resides above zero page, the 6502 example requires 7 bytes of code space, while STZ requires only 3—taking up less than half the space. Even if the accumulator contents did not have to be saved, thus eliminating PHA and PLA, 5 bytes would still be required in the 6502 example. The advantage in speed is even greater, with the 6502 code requiring 13 cycles to execute compared to only 4 cycles for the STZ instruction on the 65C816 (a speed increase of over 3x).

If a 16-bit memory location is to be cleared, the contest becomes even more lopsided, requiring the following 6502 code:

```
PHA             ;SAVE .A ON STACK
LDA #$00        ;LOAD .A WITH 00
STA LOCATION    ;CLEAR THE HIGH BYTE
STA LOCATION+1  ;CLEAR THE LOW BYTE
PLA             ;RESTORE .A
```

Assuming the 65C816 is in 16-bit memory/accumulator mode, the same thing can again be achieved by a single STZ instruction:

```
STZ LOCATION    ;CLEAR THE 16-BIT LOCATION
```

In this comparison, the 6502 code takes up 10 bytes of space and 17 cycles of execution time (again assuming the memory location resides above zero page). The 16-bit STZ on the other hand still takes up only 3 bytes of space and executes in just 5 cycles.

All in all, STZ is a great instruction for saving time and code space. There are, however, a few things to be aware of:

1. STZ has only four addressing modes available: Direct (Zero) Page, Absolute, Direct Indexed with X, and Absolute Indexed with X. This limits the use of this instruction to locations in Bank 0 (Bank 1 is also accessible through the use of Absolute Indexed with X addressing).

2. Experienced 6502 programmers beware! Unlike all other 6502/65C816 instructions that store data to memory (i.e. STA, STX, etc.), **STZ AFFECTS THE PROCESSOR STATUS REGISTER**. Executing a STZ instruction always clears the Negative Flag and sets the Zero Flag.

Absolute Indexed Addressing

For the most part, this 65C816 addressing mode works identically to the way it does on the 6502. There is one case, however, that can cause problems if the 65C816 programmer is not aware of it. We discovered this difference while trying to find the reason why a certain demo program written for the C64 would not run on the SuperCPU. We first searched for unimplemented 6502 opcodes (always guaranteed to cause the '816 to choke), but found none. We also tried running the demo at 1MHz—again, no luck. However, a 'snapshot' copy of the program *would* run on the SuperCPU. This led us to check the program's initialization routine. The only unusual thing was this routine that sets up the interrupt vectors and some Zero Page locations:

```
        LDX #$00        ;INIT .X
-       LDA TABLE,X     ;LOAD .A WITH VALUE
        STA $FFFA,X     ;STORE TO MEMORY USING
                        ;ABSOLUTE INDEXED X ADDR.
        INX             ;INCREMENT .X
        CPX #$10        ;FILLS $FFFA - $0009
        BNE -           ;BRANCH NOT DONE
```

After looking closely, we realized that the STA $FFFA,X instruction 'wrapped around' to address $0000 after the .X register had incremented to 6 . This was the programmer's intention of course—he was saving code space by using a single loop to set the interrupt vectors and some locations in zero page. Could this routine somehow be the problem on the SuperCPU? After some testing, we found the answer was yes. If we split the routine into two parts so that it did not wrap around, the program worked fine on the SuperCPU. The reason had finally become clear—even while in 6502 emulation mode, the 65C816 indexes into the next bank instead of wrapping around when Absolute Indexed addressing is used. In other words, the 65C816 filled the address range $010000-$010009 instead of $000000-$000009 when the code given in the example above was executed.

Read-Modify-Write Instructions

Here's another issue that can cause trouble for the experienced C64 ML programmer. A favorite trick of C64 demo coders is to use a single instruction like LSR $D019 to clear the VIC IRQ. Almost all demo coders use this shortcut, although perhaps only a few know why it works. You see, in order to clear the VIC IRQ, a '1' must be written to the correct bit in the interrupt status register at $D019. At first glance, it would seem that LSR $D019 would probably *never* clear the correct bit. Logic dictates that a two-instruction sequence would be needed. For example, LDA $D019 followed by STA $D019.

So why does LSR $D019 work? Because the 6502 actually writes to the target address *twice* during the instruction! During the first write cycle the 6502 writes an $FF to the target address. The final value is not written until the second write cycle. Demo coders exploit this little known fact by using the first write cycle to clear the VIC interrupt (writing $FF to $D019 will clear all VIC interrupt sources). The invalid $FF write cycle is something all 6502 programmers should be aware of when addressing any hardware register with a Read-Modify-Write instruction.

In Emulation mode, the 65C816 executes the invalid write cycle just like the 6502. In Native mode however, the designers of the '816 decided to make an improvement and eliminate this cycle. As a result, 6502 programs that use a Read-Modify-Write instruction to access a hardware register may not work on the 65C816 in Native Mode.

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

Over The Edge

By Jeffery L. Jones

COMMODORE PROGRAMMING
IN A SUPERCPU WORLD

You own a SuperCPU and you've written a complicated program that runs "just right" in 20 MHz mode. Now you want to upload your program to everyone on the Internet or sell it to a company like *Loadstar*. I say that perhaps you should try your program in 1 MHz mode first. Fine tune it until it's at least passable at the stock C-64 speed before you call it finished. I can assure you that "just right" in 20 MHz mode is way too slow in 1 MHz mode—and too slow is too bad for any program.

While developing 21st century Commodore programs for our SuperCPUs, we should keep in mind that there are many Commodore users who still appreciate efficient conscientious coding.

Judi, while testing *Legal Beagle III* last week, came into my office to tell me that it had crashed while formatting text. Much of the program was written in BASIC, but the BASIC part seemed fine with the SuperCPU engaged. When we returned to her office, we saw that the program was still operating and hadn't locked up. Unfortunately, it ran so ridiculously slow at 1 MHz that Judi thought it had locked up. Ten or so seconds for me translated into minutes for her. Garbage collection that I had never even noticed before was obvious at the slower clock speed.

At that, I went back to my office and in three minutes wrote an ML routine that sped up the process. I also smartened-up the BASIC counterpart, making its job less recursive and at least six times faster. I was guilty of writing "passable" code for my SuperCPU.

A program that's passable on a SuperCPU gets a failing grade on a stock C-64. Now that I have been conscientious toward 1 MHz users, my program is even better for SuperCPU users, because you enjoy the efficiency increase in both modes. Anyone programming for the public should try out their program in the slow mode. If we don't do this, we may inadvertently kill the C-64 while it's down by alienating everyone but the SuperCPU crowd.

Programmers all over C-64 land are talking about how the SuperCPU will change how they will program in the future. A number of people whom I respect have made incredible statements that they will probably not program in machine language so much anymore—that they will begin writing programs in BASIC and then compile them. After all, compiling a BASIC program makes it run 5-30 times faster. Couple that with a SuperCPU and it's running 100 to 600 times faster than in BASIC on a stock C-64.

But a 100% machine language version might run 500 to 1000 times faster than a BASIC version on a stock 64 and even 10,000 to 20,000 times faster than stock BASIC with the SuperCPU engaged. Which program would you rather write? Which would you rather use?

I have already proven this to myself. Last year I wrote a BASIC program that scanned for articles in an issue of *C=Hacking*, separating them off into smaller files that a C-64 could handle. This particular issue of *C=Hacking* was too large to fit on a 1541 disk. I wanted my program to scan the files for article names and then save the articles, using the article title as a filename. Compiled, it took an incredibly long time to separate the files, even with the SuperCPU engaged.

Incredulous, I stopped the program and rewrote it so that it also echoed to the screen to show its progress. It was going through the file at a pace slow enough to read as it scrolled by. I was doing this on my hard drive with parallel access. The turbo light was pretty much on all the time, but there was a slight flicker. I knew that some small fraction of the work time was being performed at 1 MHz.

Figuring I could save a lot of time, I copied the hacking file to my RAMLink and had the SuperCPU work on it there. Now the Turbo light was on 100% of the time. Still, I was disappointed. It was taking forever.

I allowed the program to sort the articles on a spare C-64 and a 1581 while I re-wrote the program, line-by-line, in machine language

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

"A program that's passable on a SuperCPU gets a failing grade on a stock C-64... Anyone programming for the public should try out their program in the slow mode."

(using the BASIC predecessor as a guide). This program wasn't as efficient as it would have been had I written it from scratch instead of manually compiling it into machine language.

The moment I typed SYS49152, I saw the first filename being saved on the destination disk—then the second, the third, and a minute or two later it was finished! This same algorithm separated the issue into smaller files in about the time it would take the built-in JiffyDOS file copier to copy the file—*with or without SuperCPU!* This was somewhere around twenty blocks per second. The compiled BASIC program took at least half an hour on a JiffyDOS-equipped 1581. Mind you, all of Loadstar's systems are JiffyDOS equipped. I can only imagine the agony if I tried the compiled program on an 800-block file without JiffyDOS. Without a SuperCPU and a RAMLink, the ML program could get the job done in maybe a minute or two with JiffyDOS. Clearly, even the most optimized compiled BASIC at 20 MHz can't hold a candle to machine language at 1 MHz.

You might ask how we lose when a veteran programmer hangs up his assembler and writes perhaps more elaborate programs in BASIC. Well however you look at it, abandoning ML for the pseudocode of most Commodore compilers is a net loss—especially for the people *without* SuperCPUs. When you think about it, the ML programmer who switches to BASIC or compiled BASIC because of the added speed of the SuperCPU is offering a product that runs 100 or so times slower than the ML version in the hopes of having the program run 20 times faster on the SuperCPU.

Imagine if Eric Lee decided that his next incarnation of *The Write Stuff* could be written in compiled BASIC. It would probably seem fast enough for most short letters without machine language. I know because I wrote *Feedback Machine*—published on every issue of *Loadstar*—in compiled BASIC, with only a little ML for the scrolling window. It's "okay" for jotting a note to us, but not for serious applications. With the SuperCPU it seems to handle any amount of text in its buffer as if weightless. As a matter of fact, I don't even need ML to scroll the screen re-printing... the whole screen works fine for a compiled program. But without the SuperCPU, you see the unprofessional inchworm effect.

If I assumed that everyone who used it owned a SuperCPU, I could easily add all sorts of ambitious word processor features to it. People with SuperCPUs would appreciate the features. People without it would call the program clunky for overreaching its scope. Too slow is bad for any program. In contrast to *Feedback Machine*, *The Write Stuff* is fine for short letters as well as 100-block applications—with or without a SuperCPU—because it was written in *100% Machine Language*. With the SuperCPU, it's truly marvelous.

Anyone who has written stories with *Speedscript* or *The Write Stuff* knows that once you get around 80 blocks, you don't want to type anything up near the top of the document. Each inserted character takes nearly a second to show up. It becomes very easy for a good typist to type ahead of the keyboard buffer. With the SuperCPU engaged, you notice no delays, and the text seems weightless right down to the last byte. If the program were written in compiled BASIC, this marvelous weightlessness would be lost—even in 20 MHz mode.

While it's true that programs seem to fly with the SuperCPU engaged, that's no reason to abandon all the efficient programming practices that a 1MHz 64K computer has forced us to adhere to all these years. Ignoring this warning will spiral Commodore 64 programs into the abyss of mediocrity that *Windows* has suffered from.

Fortunately we have memory restrictions that keep us from using all-inclusive libraries that make our final program so large that we need megabytes to fit them in memory. However, we are still vulnerable to a quantum shift toward less efficient programs. Undoubtedly these slower programs will have a larger scope, but I implore all programmers out there to make their programs as fast as possible. These slower programs will be decent on SuperCPUs, but will be ridiculously slow on a stock unit. Any sort of file utility *must* be written in machine language for it not to seem a complete joke.

In closing, there is certainly a place for compiled code in the future. I am in fact writing a very complicated program that (ouch) compiles toolbox commands into pure machine language. I'm writing it in BASIC because it's so intricate, and will I will compile it when it's done. I will not, however, allow my compiler to take more than a few moments to compile a program of only a few blocks. Right now, in BASIC, it takes minutes to compile a three-block program. Compiled, the process isn't much faster. Adding machine language to the parsing and disk access routines will easily make my next project just what I want and need.

Now is the time to take a cue from our demo-coding friends. These are people who strive to write fast, tight code. I want to see incredibly fast programs running on SuperCPUs. I want to see people striving to get their subroutines down below one millionth of a second, instead of settling for a thousandth of a second. In a complicated loop, a thousandth of a second adds up to seconds of waiting time very quickly. If we strive for the same efficiency that Commodore users are accustomed to, we will not only keep the stock users happy; we'll write extremely impressive code for the SuperCPU.

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

* CLASSIFIED ADS *

C-128-2 DRIVES-MONITOR-PRINTER-RAM XPANS-MODEM-MOUSE-ASST SOFTWARE INC GEOS-MANY EXTRAS/EXC COND-ASKING $400.00 FOR ENTIRE PKG--CALL 718-428-7320

GEOS PUBLICATION

EXPLORING AND SHARING GEOS FOR EVERY COMMODORE 128/64 USER

GEOS Publication is **$17.00** for 12 issues [US], **$19.00** Canada, Mexico, Latin America, and South America; **$21.00** elsewhere. Input and resource Journal. Email *wcpat@iglou.com* or write:

GEOS Publication
7969 Woodcrest Dr.
Louisville, KY 40219-3859

ADVERTISERS INDEX

Centsible Software 5
Click Here Software 35
Commodore Country 11
Commodore Power User Magazine 35
Commodore World 5,25,40
Computer Bargain Store 5
CMD IFC,11,20-23,25,33,40,IBC,OBC
GEOS Publication 40
J.P. Products by Mail 25
Loadstar 3
LUCKY/KDS 5
Meeting 64/128 Users Through The Mail 25
Raymond Computer 11
Videocam Services 25
Vintage Computers 5

COMMODORE WORLD
Classified Advertising

Commodore World subscribers may place non-commercial classified advertising in *Commodore World* at a cost of $10.00 per issue. Your advertisement may contain up to 150 characters (including spaces). Send your advertisement with payment to: CW Classified Advertising, c/o Creative Micro Designs, Inc., P.O. Box 646, East Longmeadow MA 01028-0646.

CMD Service Center

AFFORDABLE • FAST • DEPENDABLE

Call Today 1-800-638-3263

Our Team of Technicians are Among the Most Qualified in the Industry! Why Settle for Anything Less Than the Best?

We repair the following equipment: Commodore C-64, 64C, SX-64, C-128 and C128-D computers; 1541, 1541C, 1571 and 1581 Disk Drives plus CMD Devices. JiffyDOS Installations a specialty. All repairs warranted for 30 days. Minimum charge $35.00 plus parts and return shipping. You must contact CMD for authorization before sending any equipment.
Creative Micro Designs, Inc. P.O. Box 646 E. Longmeadow, MA 01028

Don't wait until it's too late...

RENEW EARLY!

Is your Commodore World subscription close to running out? Here's an easy way to check: look at the mailing label on the front of your copy. You'll find your subscription number and the expiration issue number. For example:

```
James Smith  12345EXP24
123 Home Street
Grand Rapids, MI 49502-0123
```

Jim's subscription will run out with Issue 24 as indicated by the EXP24 in his subscription code. Jim would be wise to re-subscribe early to avoid missing a single issue of Commodore World!

Moving?

Don't forget to notify COMMODORE WORLD!

Please call or write with your change of address 6 to 8 weeks prior to your move so that you won't miss a single issue!

CW Address Change, P.O. Box 646,
E. Longmeadow, MA 01028
413-525-0023

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

Shatter the 1MHz Barrier

SuperCPU

20 MHz Accelerators for the C-64 & C-128

BREATHING NEW LIFE INTO YOUR COMPUTER

THE SUPERCPU INCREASES YOUR COMPUTERS PROCESSING SPEED BY MORE THAN 20 TIMES! SIMPLY PLUG IT IN AND WATCH OLD PROGRAMS COME TO LIFE AND BEGIN DREAMING ABOUT THE POWERFUL NEW GENERATION OF SUPERCPU COMPATIBLE SOFTWARE FOR 1997!

What will the SuperCPU do for me?

Programs will suddenly spring to life—screens and menus pop up instantly, scrolling becomes fluid, and graphics fly. A Commodore equipped with the SuperCPU is like having a Volkswagen with a V-8. There's one small exception—the SuperCPU rides much smoother. Even though the SuperCPU gives your computer a radical increase in horsepower (up to 22 times faster), its operating system makes that power usable by maintaining compatibility with most existing software and making its operation transparent to the user.

Looking to the future, the powerful 65816 microprocessor gives programmers vast new resources to create powerful and sophisticated software. With its 16-bit registers, up to 16 MB of system memory, and 6502/6510/8502 emulation, the SuperCPU makes it easy to enhance existing software as well as providing the power to create Internet browsers, animation and other high-tech applications! The SuperCPU provides a bright future for a new generation of Commodore computing.

So join the Commodore revolution and order a powerful new SuperCPU TODAY!

SuperCPU 64 $199.00*
SuperCPU 128 $259.00*
* Plus Shipping

Ultra Fast • Compatible • Easy-to-use

- High-Speed microprocessor, 128K or 256K of fast RAM, advanced hardware logic, and up to 512K ROM enable you to run all types of existing commercial software at speeds up to 22 times faster than stock machines.
- BASIC programs, including most Bulletin Board Systems, seem to run as fast as machine language, and compiled BASIC programs run faster than ever!
- Commercial machine language programs (databases, spreadsheets, word processors, telecommunications, graphics, etc.) run so fast that you'll think your running them on another computer!
- GEOS comes alive—No typing or scrolling delays, graphic operations happen instantly, faster printing and disk access! Includes enhanced GEOS setup utility!
- Easy-to-use: Plug it into your cartridge port** and start working—no special adjustments needed.
- Built-in JiffyDOS Kernal boosts disk access speed up to 15x faster with JiffyDOS equipped drives.
- Pass-thru port provides compatibility with RAMLink, SwiftLink, GEORAM, 17xx REU's and other cartridges.
- Unit Enable/Disable, JiffyDOS On/Off, Normal/Turbo, and Reset switches make using the SuperCPU a snap!

**Additional MMU SuperAdapter installation required for 128 version.

SuperRAM Card (0 MB) $79 • 1 MB $94 • 2 MB $114 • 4 MB $139 • 16 MB $179
SuperCPU 64 w/SuperRAM (0 MB) $239 • 1 MB $259 • 4 MB $274 • 8 MB $298 • 16 MB $338
SuperCPU 128 w/SuperRAM (0 MB) $299 • 1 MB $319 • 4 MB $334 • 8 MB $358 • 16 MB $398

Prices do not include shipping and are subject to change without notice. Not responsible for typographical errors

http://www.oldgamesitalia.net/ http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/

http://www.oldgamesitalia.net/